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In This Issue

The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service

Modern Switching Power Delivers Scheduled Freight "On Time"

The illustration shows a high-power switcher of the 0-10-0 type, built to the order of the Aluminum Company of America for service on the Alton and Southern Railroad.

Cylinders	28″ x 30″
Drivers, diameter	57″
Steam pressure	230 lb.
Grate area	80 sq. ft.
Water heating surface	4009 sq. ft.
Superheating surface	1116 sq. ft.
Weight, total engine	320,840 lb.
Tractive force, main cylinders	80,500 lb.
Tractive force, with booster	96,300 lb.

Aluminum alloy is used for the main and side rods, various parts of the valve gear, the running boards, steps and many other details, thereby effecting a substantial saving in weight.

WITH scheduled freight trains hauled by high-power locomotives, making fast time over the road, shippers today expect all deliveries to be "on time" at destination. To accomplish this, efficient yard service is essential.

Like the modern road engine, the modern switcher is a high-power unit, designed and built to do its work with absolute reliability and with a minimum expenditure for fuel, supplies and maintenance. Only locomotives that so qualify can meet the present day traffic demands satisfactorily.

Every railroad has its switching problems, which can be solved efficiently only by locomotives especially designed for the service. Let us help you.

THE BALDWIN LOCOMOTIVE WORKS
PHILADELPHIA

RAILWAY AGE

Busir ess and Taxes

Increases in government expenditures necessarily cause increases in taxes. Government expenditures and the taxation they make necessary have become probably the most important problem with which the American people are confronted. Government expenditures for certain purposes are being largely increased during the present depression to limit unemployment, curtail reduction of the purchasing power of labor, and hasten the restoration of prosperity.

A report made at the meeting of the American Automobile Association last week showed that $1,500,000,000 is being spent this year upon the construction of highways, and the executive secretary of the American Association of State Highway Officials recently stated that 194,000 men are employed upon highway construction in 40 states. President Hoover was quoted as having announced last week that the number of persons engaged in construction work on government projects and in furnishing supplies for them has increased from 235,000 in January, 1930, to 655,000 in June, 1931, and would increase to 805,000 by September. The number of regular government employees at present is 901,000, a reduction of only 1,000 since January, 1930, and, in consequence, there are now 1,556,000 persons engaged in federal government work, including both regular and construction employees, and in September there will be about 1,706,000, making the increase since January, 1930, about 570,000.

These figures present a striking contrast to those of private industries, which must depend upon earnings and not taxes for their ability to give employment. The number of railroad employees declined from 1,561,035 in January, 1930, to 1,319,469 in March, 1931, or by 241,566. The decline of employment in many other industries has been relatively larger. For example, the reduction of purchases made by the railroads, owing to the decline of their earnings, probably has caused as large a decline of employment in the industries that depend upon them for a market as upon the railroads themselves, making approximately 500,000 men that have been deprived of their employment by the decline in railroad earnings.

The theory upon which the large increase of government expenditures upon highways, waterways, public buildings and other public works is now being made is that such government expenditures should be severely limited when general business is good and largely increased when general business declines, in order to stabilize employment and prosperity. But when did we begin to act on this theory? Not when business was good. Total government expenditures, local, state, and national, increased from $10,254,000,000 in 1923 to about $13,000,000,000 in 1928, and meantime taxes increased from $7,234,000,000 to a total now estimated at $10,162,000,000. The difference between the taxes collected and the expenditures made was derived from the issuance of bonds, and much of the increase in expenditures was made upon highways and other public works.

Business Men and Government Expenditures

In other words, in disregard of the economic theory mentioned, government expenditures were greatly increased while general business was good, and now, in nominal accordance with the same theory, are again being increased while business is bad for the purpose of making it good. The increased taxes due to past expenditures are a burden upon industry and commerce that is impairing their ability to make purchases and give employment during the depression; and business will have to revive in spite of this burden and of the further increase in taxes caused by the government expenditures now being made.

Will the government expenditures which are now being increased to reduce unemployment during the depression be reduced after the depression has passed? Experience indicates that they will be continued and still further increased unless the public rises in rebellion and forces their reduction. Will public sentiment effectively demand their reduction? Not unless the business interests of the country lead the insurrection, and business interests are likely to be divided. Manufacturers of automobiles, buses and trucks, and those who provide machinery and materials for road and building construction probably will seek a continuance of the present huge expenditures upon highways and public buildings. Politicians and shippers probably will favor still larger expenditures upon inland waterways.

Business men now denounce, and no doubt will continue to denounce, the politicians for the great and continued increases in the cost of government, but, at the same time business interests that benefit or believe they benefit by large government expenditures would oppose now, and probably will oppose in future, reductions in the classes of expenditures that they believe help their business. And that helps explain why the nation has its present tax problem and is likely to have a more serious one in future. Many business men are exactly like politicians in the respect that they are opposed to increases in government intervention in business, opposed to increases in government expenditures, "view with alarm" the tremendous and increasing burden of taxes upon industry, commerce and the people—but are strongly in favor of every increase in government expenditures by which they believe they will benefit.

The results of this alliance of politicians and business men in favor of the increases in the cost of government which they so deplore are visible upon every hand. The federal government is confronted with a year's deficit of about one billion dollars, and throughout the country local and state governments are becoming unable to collect enough taxes because farmers, home owners and even industrial and commercial corporations cannot pay them. In the first four months of 1931 the net operating income earned by all the Class I railways with which to pay interest and dividends upon all their securities amounted to only $146,000,000, while their taxes amounted to $110,000,000, or 75 per cent as much. In spite of the most drastic retrenchments in employment and purchases, the railways' net operating income was 40 per cent less in the first third of 1931 than in 1930, while the decline in their taxes was less than seven per cent, and this decline in their taxes apparently was due entirely to the reduction in their net operating income, upon which their federal taxes are based.

In an address before the Chamber of Commerce of the United States on April 29, Arthur J. Lacy of Detroit, said, "No increase in tax burdens can be justified by any state that continues to indulge, as does Michigan, in the unpardonable luxury of spending $50,000,000 a year on a state highway program at a time when over 450,000 parcels of property (in that state) are in a single year being sold and confiscated from private owners for unpaid taxes." What is occurring in Michigan, however, is occurring in all parts of the country.

Taxes Must Be Reduced

Whether the present policy of increasing government expenditures during a depression, and consequently increasing taxes, is economically sound as an emergency expedient, after all the increases in government expenditures that were made when business was good, is questionable. As to the desirability of reducing taxes in future, there can be no question whatever. Continuance of such increases as have occurred within recent years would rapidly make the profitable ownership and operation of most private property impossible. The tax problem is now receiving much discussion, but most of it relates to ways of shifting taxes from some kinds of property to others, or to ways of increasing taxes. The one vital problem which demands solution is that of reducing total taxes; and this can be accomplished only by a reduction of all government expenditures, including those upon highways and other public works. However desirable public improvements may be, the people, like an individual, cannot afford to have things they cannot pay for, and the present tax situation demonstrates that the people, through government expenditures, have been trying to provide themselves with things that they cannot pay for. The chickens have come home to roost, and past government expenditures, which may have temporarily stimulated business, are now helping to cause the ruin of thousands and even millions of persons.

Directly or indirectly every person pays taxes. Comparatively few write the checks that pay them, but they must be paid also by all the rest of the people in increased cost of living, or, as at present, in business depression, general reduction of incomes and widespread unemployment. There has been no cause of the present depression, excepting perhaps the late war, more important than reckless government expenditures and increases in taxes. There is nothing more essential to a revival and maintenance of prosperity than a drastic reduction of government expenditures and taxes.

What Rental for Use of Public Property for Gain?

Municipal ferry boats to and from Staten Island, New York City, carry three musicians each, usually a violinist, cellist and pianist, to help New Yorkers while away the time going to and from their homes. The hat is passed for stray nickels and dimes the passengers may care to contribute. For 1931 and 1932, an Italian obtained the concession to supply this music, bidding $20,950 for it. The bootblack concession is even more profitable. The successful bid for this was $29,975 for one year.—*The Wall Street Journal.*

These bootblacks and musicians are using public property for purposes of private gain, but they are paying on a commercial basis for the privilege. Their case warrants comparison with that of others for whom the taxpayers supply a place of business—bus and truck operators, for example. The license fee for a 30-passenger bus in New York State is $67.50 and that of a truck weighing slightly over four tons is approximately the same. Assuming an annual gasoline consumption of 5000 gallons for either vehicle, their taxation would be augmented by $100—a total payment of $167.50 made for use of the public highway for each such large vehicle. The payments to the city

by the musicians and bootblacks on the Staten Island ferry totals $50,925, or approximately the same as the taxation of no less than 304 large trucks and buses.

But the presence of the bootblacks and musicians on the ferry boats does not entail a single cent of added expenditure on the part of the government, whereas heavy buses and trucks necessitate millions in extra highway construction costs because of their excessive weight, to say nothing of the fact that they increase highway congestion and require the building of additional roads which otherwise would not be necessary. If bootblacks and musicians and peanut vendors and other such lowly folk are to be assessed to the full commercial value of the public property they use as a market place, is there any reason why highway transport operators should escape similar assessment—particularly in view of the fact that their payments now in most cases fall far short of equaling the *added* expense to the state which their presence on the highway entails?

And just as if the highway transport industry were not, in most states at least, being to a considerable extent already supported by the taxpayers, the National Automobile Chamber of Commerce and other allied interests are carrying on a campaign designed still further to support the industry from the public purse. We refer to their audacious claim that motor vehicle tax receipts should be used for highway purposes and nothing else. Are all the taxes a farmer pays used to purchase farm implements and fertilizer for him? Are the householder's taxes devoted exclusively toward repairing his premises, providing shrubbery and paint? Are taxes on factories devoted exclusively toward purchasing new machinery and building new buildings? Then why should motor vehicle taxes, and particularly those of commercial highway users, be devoted exclusively to highway purposes—especially since even now their payments fall far short of meeting the total national highway bill? If every industry and every individual received the kind of treatment from the tax authorities which the N. A. C. C. is seeking for its industry, then the general functions of government—schools, police protection, national defense—would die of starvation.

Forestalling at High Speed

In the hearings before the Interstate Commerce Commission in 1924 the carriers testified that the use of the train stop system without the speed control would be impracticable unless the commission changed its specifications to permit the inclusion of a device to permit the engineman to forestall an automatic application of the brakes. It was claimed that without a forestalling feature trains would be stopped automatically so frequently as to cause serious delay unnecessarily. Therefore, at the request of the carriers, the commission changed its specifications to permit the use of the forestaller, stating at that time that the change was made tentatively and that if experience showed that "the permissive feature does not fulfill its purpose, we can at any time require its elimination."

As a result of this change, roads which had considered the use of automatic train control, with speed control, decided to install automatic train stop instead. In the installations made in compliance with the I. C. C. orders, together with the installations made voluntarily, 3,956 miles of track and 1,386 locomotives have been equipped for operation with automatic train control, including speed control, as compared with 16,560 miles of road and 7,847 locomotives equipped with automatic train stop. Of these roads only one, the Missouri Pacific, with 53 miles of track and 37 locomotives equipped, is using the train stop system without the forestaller.

The Bureau of Safety of the I. C. C. has just issued a report of the investigation of an accident which occurred in train stop territory on February 28, in which it states that the accident was caused by the failure of the engineman properly to control his train in accordance with the rules and signal indications. In this report other accidents were cited which were caused by similar circumstances, and particular emphasis was placed on five other accidents which have occurred in automatic train stop territory since December 1, 1929, in all of which the enginemen forestalled at the caution signals but then failed to control their speeds properly.

The report further calls attention to the American Railway Association's standard code of block signal rules, as revised in January, 1928, in which the approach indication of a block signal, as shown in Rule 285, is "Prepared to stop at next signal. Train exceeding medium speed must at once reduce to that speed." Under this revised rule the engineman is required to reduce the speed of his train to medium speed at a caution signal, this wording being in contrast to that of the previous rule, which required only that the engineman approach the next signal prepared to stop. The use of the forestaller and the observance of Rule 285 are closely related, and on some roads the rules require that an engineman shall not forestall an automatic brake application until he has taken action to reduce speed; in other words, until a restrictive signal has been observed and "is being obeyed."

While discussing the subject of automatic train control at the recent convention of the Signal Section in New York, W. P. Borland, director of the Bureau of Safety, warned the roads that the use of the permissive forestalling feature for train stop had been granted by the commission for trial only, and that the carriers may lose the privilege of using this feature if it is abused. He recommended that the use of the forestalling devices be surrounded with suitable safeguards, such as the requirement that the engineman must be taking action to comply with the present Rule 285 before he is permitted to operate the forestaller. This "word to the wise" should be sufficient.

Centralized Traffic Control on the P. & P. U.

Six junctions and 16 track-miles, used by seven carriers, controlled from one office—$19,350 saved annually in operating expenses

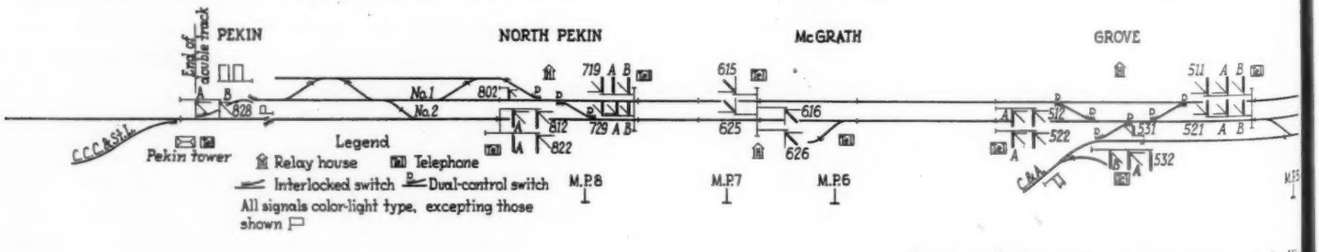
The New Type Control Machine

A CENTRALIZED traffic control installation, involving several interesting operating features and including an entirely new type of equipment, has been placed in service on the Peoria & Pekin Union between Bridge Junction, in Peoria, Ill., and Pekin. This 7.6-mile section of line is double track, with 0.7 miles of third track, thus making a total of almost 16 miles of track in the installation. Twenty power-operated switches and 36 signals in this territory are now controlled by the dispatcher. Train movements in either direction on all tracks are directed by signal indication, and all written train orders, as well as rights by class, direction and time-table superiority have been eliminated.

General Layout

The Peoria & Pekin Union is primarily a terminal railroad furnishing passenger and freight station, enginehouse, classification yard, and switching facilities for one tenant road and six proprietary carriers—the Illinois Central, the Chicago & Alton, the Pennsylvania, the Nickel Plate, the Big Four, and the Chicago & Illinois Midland. In addition, intermediate switching service is provided between seven other line-haul carriers. The main line extends from a point about a mile north of the Union station in Peoria, southward through Bridge Junction along the north side of the Illinois river to Hollis, about 6 miles distant, where connection is made with the Toledo, Peoria & Western. The second line extends from Bridge Junction across the Illinois river through Wesley Junction and Grove to Pekin. The classification yard is located on the east side of the river, north of Wesley Junction; the enginehouse is at Bridge Junction.

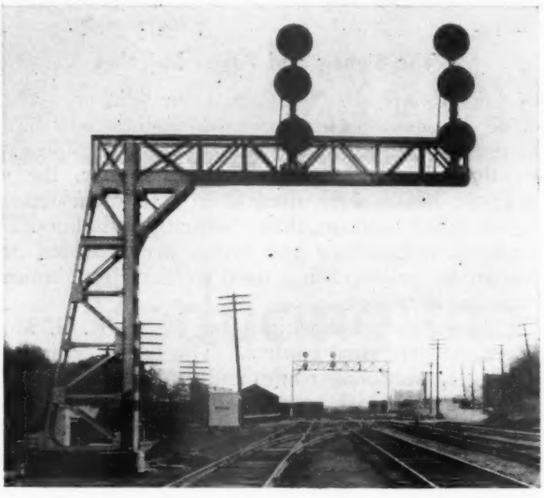
That portion of the road between Bridge Junction and Pekin handles the heavier traffic, and is the section now equipped with centralized traffic control. Within this territory there are six junctions where other roads connect with the P. & P. U. The C. & I. M., the I. C., and the C. C. C. & St. L. come in at Pekin, the C. & A. from the south connects at Grove, and the N. Y. C. & St. L. and the Pennsylvania at Wesley Junction while at this latter point the C. & A. line extends northward. The junction at Wesley connects with the East Peoria classification yard and all freight trains leave or enter the main line at this point. The locomotives are serviced at the engine house on the north side of the river and the movement of light engines adds to the traffic congestion. At Wesley Junction three separate connections are used by transfer cuts in and out of the yard, as well as by all light engines moving between the



Track and Signal Plan of Centralized Traffic

yard and the enginehouse. All outboard passenger trains operate over the P. & P. U. from Bridge Junction to their respective junctions; likewise, inbound trains make the opposite move.

The scheduled train movements in this territory include 34 first-class and 23 second-class trains, totaling 57 movements daily, to which are added about 105 transfer and light-engine moves. The first day that the new system was in service there were a total of 163 train movements in 24 hours. In order to meet the requirements for service, the schedules are so arranged that the number of trains reaches a maximum during three peak periods of the day, i. e., from 6 a. m. to 8 a. m., from noon to 4 p. m., and from 6 p. m. to 9 p. m.



Freight Trains Enter and Leave the Yard at Wesley

Trains arriving on the P. & P. U., as well as those ready to depart, must be handled without delay; otherwise complaints may arise implying partiality to certain carriers.

Previous Method of Operation

Train movements in this territory were formerly directed by manual block and train orders, with block stations at Wesley, Grove and Pekin. The train dispatcher was located in the superintendent's office building, one-fourth mile north of the tower at Illinois Bridge. During the peak traffic periods each day, trains were run close together, resulting in numerous delays on account of the manual block system of operation.

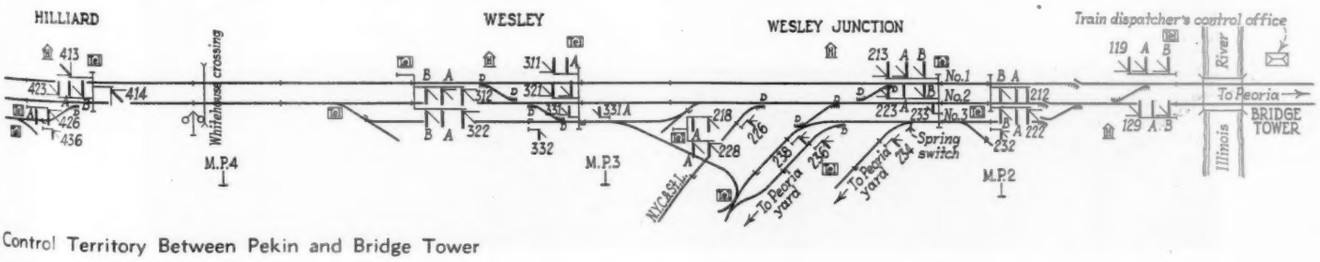
Four interlocking plants had been in service in this territory: (1) at the Illinois Bridge plant, an all-electric 56-lever interlocking controlling a double-track crossing with the Rock Island, numerous switches for tracks leading to the enginehouse, the operation of the drawbridge, and the end of the third main just east of the river. (2) At Wesley Junction, a 28-lever mechanical plant controlling the junction with the Nickel Plate, which is also used by the Pennsylvania as well as the three routes leading to the classfication yard, which are used by transfer cuts and light engines. This plant had been taken out of service during Federal control and had never been restored, a ground switchman being employed on each trick. (3) A small mechanical plant in the station at Wesley, to handle the crossovers and junction leading from the main line to the classification yard, the route used by all inbound and outbound line-haul freight trains. (4) At Grove, a 28-lever mechanical plant handling the junction with the C. & A. line from the south, as well as several crossovers and the south end of a passing track. (5) At Pekin, the south end of the new system, a 78-lever mechanical plant controlling the end of double track, the crossing and junction of the Big Four and the junction of the Santa Fe and the Peoria Terminal. The operation of these facilities required a total of 21 employees, including the dispatchers, and the operators at Pekin who are joint employees with another road.

The Problem

The railroad was faced with the necessity of constructing a new interlocking at Wesley Junction, where switchmen had been employed since the old interlocking was taken out of service. Likewise, the old plant at Grove was worn out. The construction of modern interlocking at these two points would not have permitted any reduction in operating expenses, nor would it have facilitated the movement of trains to any extent. Investigations showed that a complete system of centralized traffic control could be installed for approximately the same investment as would have been required for the two new interlockings and the replacement of several automatic signals. Further, the centralized control would not only facilitate train movements, but also permit a saving in operating expenses by reason of the reduced number of levermen and operators required.

The interlockings at Illinois Bridge and Pekin were continued in service, the centralized traffic control system replacing all the block offices, interlockings and ground switch layouts between these plants. As the new system is tied in with the Bridge and the Pekin plants, trains are directed by signal indication throughout 7.8 miles of line, on which there are 20 power-operated switches, 36 controlled signals and 6 automatic signals.

To run trains in either direction on either track, it was necessary to change the crossover at the south end of the Grove layout and add a crossover at North Pekin. The main-line derails formerly included in the junction plants were eliminated. To provide the additional space that was needed, a new tower was constructed at Illinois Bridge. The centralized control machine is now located near the regular interlocking machine in this tower, and the dispatcher, who was formerly in the superintendent's office, was moved to Bridge tower, where he operates both machines, except that a leverman is retained for the present to assist during the rush period from 1 p. m. to 9 p. m. The services of the remaining 14 operators,



Control Territory Between Pekin and Bridge Tower

levermen and switchmen formerly required in this area have been dispensed with.

An out-door telephone was installed at each controlled signal and at each hand-operated main-line switch in the centralized control territory. The phones are so located that a trainman riding the head end of a train which has been stopped at a signal, will be within 100 ft. of a phone. A line connecting these phones extends to loud-speaker apparatus in the control office. The rules require that when a train is stopped at a signal, a trainman communicates with the dispatcher at once.

The Centralized Control System

The centralized traffic control equipment is of the latest type developed by the General Railway Signal Company. It is known as the Duplex system, this name denoting that the system provides for the simultaneous transmission of controls to, and the receipt of indications from, the same or different stations. Only three line wires are required, these forming two circuits, one for outgoing controls and the other for incoming indications.

The control machine includes several important improvements and is the first of this type to be placed in service. It is only 43 in. high and 55 in. long and is mounted on an ordinary flat-top desk. An illuminated track diagram of the entire system extends across the top of the machine panel. The signal levers are arranged in a row below the diagram, and the switch levers are in a row just beneath the signal levers. These levers are of a new rotary-knob-type design, having the same general appearance as the knobs on an ordinary radio receiving set. The automatic graphic train recorder is recessed in the top of the desk.

Red lights, located directly in the lines representing the tracks on the diagram, are lighted when the corresponding section of track is occupied by a train, and, in addition, a single-stroke bell rings when a train enters an OS section. The signals are represented on the diagram by small green lights which are lighted when the corresponding signal is indicating proceed. Small switch-point devices in the tracks on the diagram are mechanically connected to and are operated by the corresponding switch lever. A small lamp mounted in the switch lever itself is lighted when a lever is operated; it continues to be illuminated until the switch has completed its movement and is locked in the position corresponding with the position of the lever. Therefore, the entire board is normally dark, no light appearing unless a train is occupying a track section, a signal is at proceed, or a switch is in operation.

The automatic train recorder is of a distinctly new style, operating somewhat on the prnciple of an automatic typewriter, the impressions on the graph being made by metal type striking through a typewriter ribbon. A different character is used for each of the three tracks. When a train passes through an OS section, the main or base portion of the mark made on the graph is horizontal. If the train crosses over from one track to another, or if it leaves the main track at a junction, the mark is turned 45 deg. diagonally. Thus the record is complete and can be followed quite readily.

The Signals and Power Switches

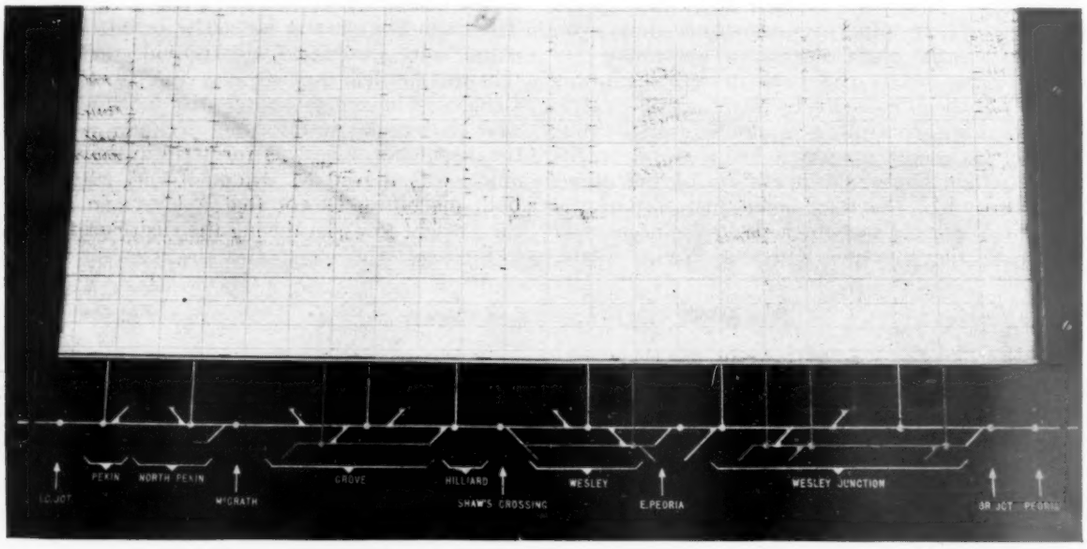
The signals are the triangular color-light type and are normally lighted. Three of the high signals are on ground masts and the remainder are on bridges. In order that all high signals may be similar, the same number of heads were used over both main tracks at each controlled location, thus eliminating markers. Three indications, red, yellow and green, are provided on all high signals, yellow being used as a call-on indication in certain instances.

The power switch machines are the G. R. S. Model-5A, equipped for dual control. The ordinary approach, time, route, sectional route and indication locking is provided in each case to protect the operation of these switches. The switch marked SS on the diagram near Wesley Junction is equipped with a Racor Model-100-A spring-switch stand. This switch is used principally by light engines and transfer cuts going from the classification yard to Bridge Junction. As these moves are predominately in the trailing direction, a spring switch serves adequately. The storage batteries required for this installation were furnished by the Electric Storage Battery Company and the insulated wire and cables were furnished by the General Cable Corporation.

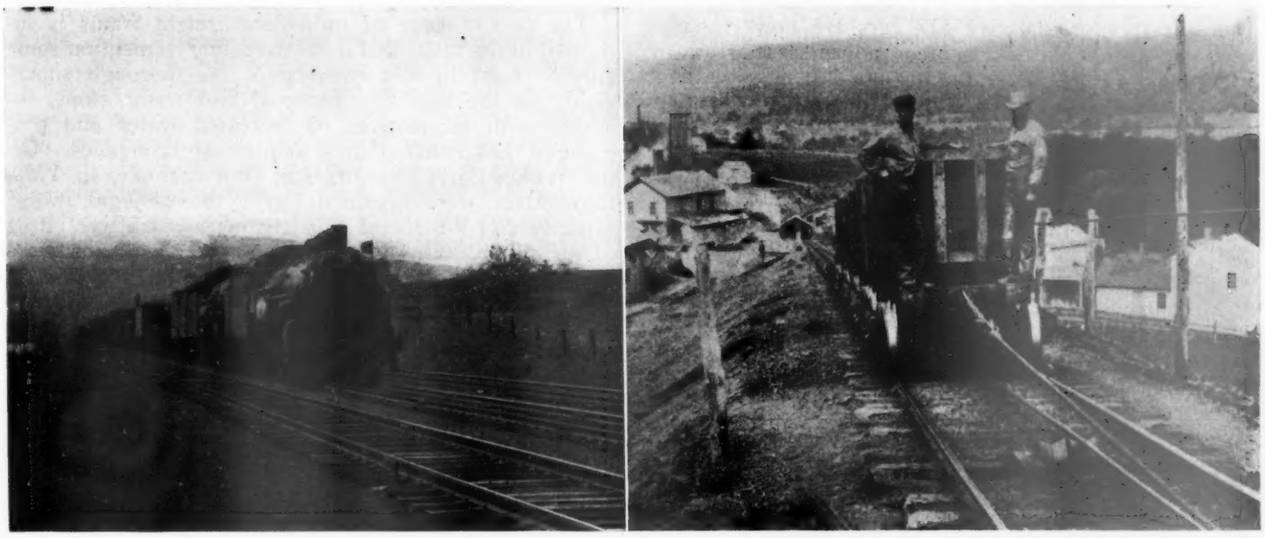
20 Per Cent on Investment

The pay-roll saving, not including the wages of the one leverman who will eventually be removed, nor giving any consideration to the wages of joint operators

(*Continued on page 1155*)



The Automatic Train Graph Operates Like an Automatic Typewriter



The New and the Old in Delaware & Hudson Operations

Reducing the Operating Ratio

Delaware & Hudson uses modern methods to lower costs and promote efficiency

AS a result of efficient operation, the transportation dollar on the Delaware & Hudson now goes 15 per cent further in paying the cost of hauling freight than it did 10 years ago. This result has been brought about primarily by the pre-classification of freight trains, the elimination and consolidation of stations, speeding up cars and trains in movements through yards and over the road, and by having available at all times a comparative statistical analysis that enables the officers to determine quickly when any one operation happens to be out of line.

The Delaware & Hudson operates 898 miles of line, extending from Wilkes-Barre, Pa., on the south, and Binghamton, N. Y., on the west, via Schenectady and Albany to Rouses Point, N. Y., on the north, and Mechanicville, N. Y., and Rutland, Vt., on the east.

From Rouses Point to Montreal operations are conducted over the Napierville Junction Railway to Delson Junction, a distance of 28 miles, and from Delson Junction to Montreal over the Canadian Pacific, a distance of 14 miles.

A considerable traffic has been built up from and to New England via Binghamton and Mechanicville, and while the D. & H. is still a large coal carrier, more traffic of a general nature is being handled each year. For example, the D. & H. is a very large carrier of milk and of paper, both of these commodities being handled in special trains operated for that purpose on extremely fast schedules.

For operating purposes, the railroad is made up of four divisions, as follows:

Champlain division: All lines north of Whitehall, N. Y.

Saratoga division: All lines between Albany and Troy on the south and Whitehall, N. Y., and Rutland, Vt., on the north and east.

Susquehanna division: All lines Binghamton, N. Y., on the south to Albany and Mechanicville, via Schenectady on the north.

Pennsylvania division: Line between Nineveh, N. Y., and Wilkes-Barre, Pa.

The headquarters of these divisions are at Plattsburg, N. Y., Albany, Oneonta, and Carbondale, Pa. Thus it is possible to supervise the entire railroad closely, since the most remote division headquarters is only eight hours removed from the general office.

This ability to bring together all four superintendents, without taking any of them off their divisions for any great length of time, has been utilized in handling labor matters. The four superintendents, together with the wage supervisor and representatives of the mechanical and engineering departments form a committee, which meets once a month and handles all grievances. The employees have the right of appeal from the decisions of this committee, but so well does it function that 98 per cent of the grievances are finally settled by the committee. Cordial relations with the employees have played a large part in the operating improvement.

Pre-classification

One of the most important of the efficient operating methods installed has been a system of pre-classification of freight trains, whereby a faster movement of cars is secured and much switching is eliminated. In putting this system into effect a thorough study was made of operating conditions throughout the railroad, so that the plan might be based on the most efficient method for the entire system when it was made effective.

The results have been interesting. At the Wilkes-Barre yard, for example, one through train daily was being pre-classified, while the other cars were moved only 35 miles to Carbondale for further classification.

In contrast approximately 517 cars are now classified each day at Wilkes-Barre for movement northward. Of these, 120 cars move to Oneonta 130 miles without further switching; 170 cars move to Mechanicville, 216 miles, and 82 cars move to Whitehall, 260 miles.

At Carbondale an occasional train was classified for Mechanicville and points north, but the bulk of the cars were moved only 96 miles to Oneonta for further classification. Under the new system, of the 391 cars classified at Carbondale daily, 108 move direct to Oneonta, 96 miles; 74 move to Schenectady, 164 miles; 100 move to Mechanicville, 180 miles; and 80 move to Whitehall, 224 miles.

At Binghamton yard, three trains were classified daily for movement through to Mechanicville while the rest of the cars moved only 61 miles to Oneonta for further classification. Under the present arrangement, of the 475 cars classified at Binghamton daily, 74 move to Oneonta, 28 to Schenectady, 131 miles; 53 move to Albany, 143 miles; 232 move to Mechanicville, 147 miles; and 51 move to Whitehall, 190 miles.

On southbound business at Rouses Point, no classification was taking place for points beyond Whitehall, 113 miles. At present, of the 229 cars classified at Rouses Point daily only 43 move to Whitehall, whereas 139 cars move to Oneonta, 243 miles.

Formerly, a few through classifications were made at Mechanicville, all other cars being moved to Oneonta for classification. Under the present arrangement, of the 568 cars classified here daily, 95 cars move to Oneonta, 86 miles; 264 move to Binghamton, 147 miles; and 209 are classified for movement through to Wilkes-Barre, 219 miles.

At Oneonta, of the average of 530 cars classified daily, 48 move to Binghamton, 61 miles; 288 move direct to Carbondale, 95 miles; and 177 more through to Wilkes-Barre, 134 miles.

This entire operation is closely checked by a classification and tonnage bureau in the office of the superintendent of transportation. At this bureau the wheel reports are analyzed daily and detail studies are made of train performance. These studies include the tonnage hauled between all points, the type of power used, the number of cars for each classification destination, the time on the road, and, in the case of main trackers, the time consumed at intermediate terminals.

As a result of the installation of this system, the yard operations showed an improvement of approximately 20 per cent in 1930, as compared with 1920. In 1920, nine cars were dispatched in road movement per yard engine hour, as compared with 12.07 cars during 1930.

Freight Train Performance

Following these improvements, there has been a considerably improved freight train performance. The miles per car per day averaged 28 in 1920, as compared with 35.3 miles in 1929. Likewise, freight train speeds have been steadily increased from 9.5 miles per hour in 1920 to 12.8 miles per hour in the first 11 months of 1930. Similarly, the gross tons per train have been increased from 1,683 in 1920, to 2,005 tons for the first 11 months of 1930.

The expedited yard and road movements have also brought about a decrease in per diem payments. In 1920, only one out of every 32.5 foreign cars received from connections was delivered off the line before midnight of the same day. In 1928, one out of every 13 cars was so delivered, and during the first 11 months of 1930, one out of every 10 cars was delivered to connections before midnight on the day received.

The performance of individual freight trains is indicated in the table, and it is interesting to mention some further facts in this connection. A thorough supervision of the necessity for coal and water stops, together with locomotives of increased water and coal capacity, has resulted in a number of economies. On the Wilkes-Barre-Oneonta run, for example, in 1920, locomotives were operated having a 6,000-gal. water capacity and 9-ton coal capacity, with a tractive effort of 40,150 lb. On this 130-mile run, the trains were stopped to take water six times, and to take coal twice, while the fire was cleaned once. At present, locomotives having a water capacity of 9,000 gal., a coal capacity of 15 tons, and a tractive effort of 64,000 lb., which are now being operated, make only three water stops, with no stops for coal or for cleaning the fires.

Likewise, on the runs between Carbondale and Oneonta, in 1920, locomotives with a water capacity of 9,000 gal., a coal capacity of 14 tons, and tractive effort of 64,000 lb., were being operated. These trains took water four times, and coal once, and cleaned the fire once. At present, with locomotives of 9,000-gal. water and 15-ton coal capacity, and tractive effort of 68,800 lb., water is taken twice, and no stops are made for taking coal or cleaning the fires.

Average Individual Freight Train Run Performance

	Cars	Tonnage	Time on road
Wilkes-Barre to Oneonta—130 mi.—1920	33	1,743	13 hr.
1st 10 mo. 1930	50	2,745	8 hr. 28 min.
Carbondale to Oneonta—95 mi.—1920	54	3,557	11 hr. 48 min.
1st 10 mo. 1930	75	4,845	6 hr. 53 min.
Binghamton to Mechanicville—147 mi. —1920	46	2,404	12 hr. 10 min.
1st 10 mo. 1930	69	3,170	8 hr. 50 min.
Oneonta to Mechanicville—86 mi.—1920	57	3,423	9 hr. 36 min.
1st 10 mo. 1930	72	3,855	6 hr. 24 min.
Oneonta to Whitehall—130 mi.—1920	48	3,530	13 hr.
1st 10 mo. 1930	85	4,762	11 hr. 9 min.
Whitehall to Rouses Point—113 mi.— 1920	39	2,230	9 hr. 12 min.
1st 10 mo. 1930	53	2,860	7 hr. 3 min.

Between Oneonta and Whitehall, 130 miles, locomotives with a 6,000-gal. water capacity, 9-ton coal capacity, and 40,150-lb. tractive effort, were operated in 1920. The trains took water six times and took coal once. In 1930, locomotives with 9,000-gal. water capacity, 14-ton coal capacity, and 50,600-lb. tractive effort were operated on these runs. The trains stopped for water three times and for coal once.

These runs are typical of the improvement that has been effected over the entire system, where over a hundred stops daily have been eliminated.

As a result of this improvement in motive power, a larger business is now being handled than in 1920, with only 331 locomotives in freight service, as compared with 371 in 1920.

Except for the reduction of one grade from 0.8 per cent to 0.5 per cent for 13 miles on the Susquehanna division, there have been no major changes in line. The standard of track maintenance, however, has been steadily improved. Rock ballast is now being applied to the main line.

Traffic Density Considered

The improvements in track construction have been made first on those lines with the greatest traffic density. Between Nineveh and Oneonta, the density amounts to 12,270,855 net tons per mile of road per annum, and, between Oneonta and Delanson, to 11,701,323 miles. To handle the heavy traffic in this territory, three sections of northbound third running track, 6 miles, 11 miles, and 13 miles in length, respectively, have been constructed on which tracks the grade is also reduced against the northbound movement.

The Pennsylvania division contains 35 miles of prac-

tically continuous yards between Wilkes-Barre and Carbondale. In a 45-mile territory in the Wyoming valley, the D. & H. serves 25 coal-mining operations although with present conditions in the coal industry, all of these mines are seldom working at once. Mine run crews handle the switching at the mines, and a system has been evolved whereby these crews also do a great deal of local switching and handle cars that were formerly set out by through trains. These mine runs are divided into two sections, one pool operating from Carbondale south as far as Scranton and the other pool operating from Wilkes-Barre north to Scranton. Most of this coal is taken to the Carbondale yard for classification, where the terminal has a capacity of 3,200 cars, although some cars are classified in intermediate yards at Green Ridge, 800 cars, Hudson, 800 cars, and Wilkes-Barre, 400 cars. The results of mine run switching are indicated at Green Ridge, where four mine-run locomotives now perform the work that previously required part time of 30 road locomotives.

Immediately north of Carbondale the railroad leaves the Wyoming valley and climbs over the mountain into the Susquehanna valley. Northbound coal trains handle 4,800 to 6,000 adjusted tons over this portion of the railroad, with helpers in both directions over the mountain. The traffic density on this section of the line is: Wilkes-Barre-Scranton: 5,581,985 tons, Scranton-Carbondale: 8,141,283 tons, Carbondale-Nineveh: 9,329,125 tons.

An article describing how these operations are controlled by means of current statistics, will appear in an early issue.

Claim Prevention Improved in 1930

THE annual report of the Committee on Freight Claim Prevention of the Freight Claim division of the American Railway Association, which shows that claims decreased $1,193,226 or to $36,239,640 in 1930, outlines the steps taken to decrease claims further. In commenting upon the resolution adopted by the American Railway Association at Chicago on May 15, 1930, calling for an investigation of top icing, the report states that a thorough survey has been made of the situation by the Freight Container Bureau, the Freight Claim Prevention committee acting as a follow-up agency in an effort to secure improved conditions at origin points. Special efforts were first directed towards securing cross-wise loading of tomatoes, and applications to tariff-governing bodies in the southeast, southwest and Pacific coast have brought partial results and there are assurances of more complete results being secured in the future. Petitions for the restriction of the bulge-pack and for improved loading rules for carrots, cauliflower, lettuce, celery and other vegetables in crates will go to the territorial tariff committees at an early date.

The report devoted to livestock states that the mild winter of the past year, accompanied by the great reduction in cripples and deads, seems to confirm the belief that special measures adopted by some railroads and shippers including the cleaning of cars, bedding with straw in winter and sand in summer, together with frequent showering of hogs in warm weather, are valuable protective measures and are to be encouraged as a means of preventing losses. An extensive use of reports for recording exceptions taken at loading stations and at intermediate points by employees having to do with the handling of livestock, has proved a successful means of reducing the number of dead and crippled animals. There is now in preparation, for the information of members, a report outlining the various uses to which documents of this nature may be put in prevention work.

As a means of reducing damage to sewer pipe and other clay products, the Freight Container Bureau, after studying the problem thoroughly, has drafted experimental loading specifications to be published in supplement to Consolidated Freight Classification. After several hundred test cars have moved under its general supervision, it is the purpose of the Freight Container Bureau to compare loading costs, transportation damage and other factors under the old and the new loading plans, and to suggest such further changes in the loading rules as may be justified. During the year, impact tests were made on pipe loaded in various ways in cars with sides removed and the effects observed. Road-haul experimental loading was continued on an even greater scale than in previous years. In all of this, excellent co-operation has come from shippers, steel strap manufacturers and representatives of the Freight Container Bureau, inspection bureaus and claim prevention departments. Unit-tie loading has been found to be superior for glazed hollow building tile, on which breakage claims have been very heavy. In a movement of 60 cars on one contract, only 76 out of 276,000 tile were broken.

To improve the handling of flour and other mill products, the Northwestern Claim Conference took advantage of the concentration of flour milling in and adjacent to Minneapolis, Minn., and sought the co-operation of the millers in working out improved loading practices. As a result, a joint committee was organized, consisting of representatives of the principal millers and heads of mechanical and freight claim prevention departments of northwestern railroads. Several meetings were held and suggestions referred to the Mechanical, Transportation and Freight Claim divisions of the American Railway Association for consideration.

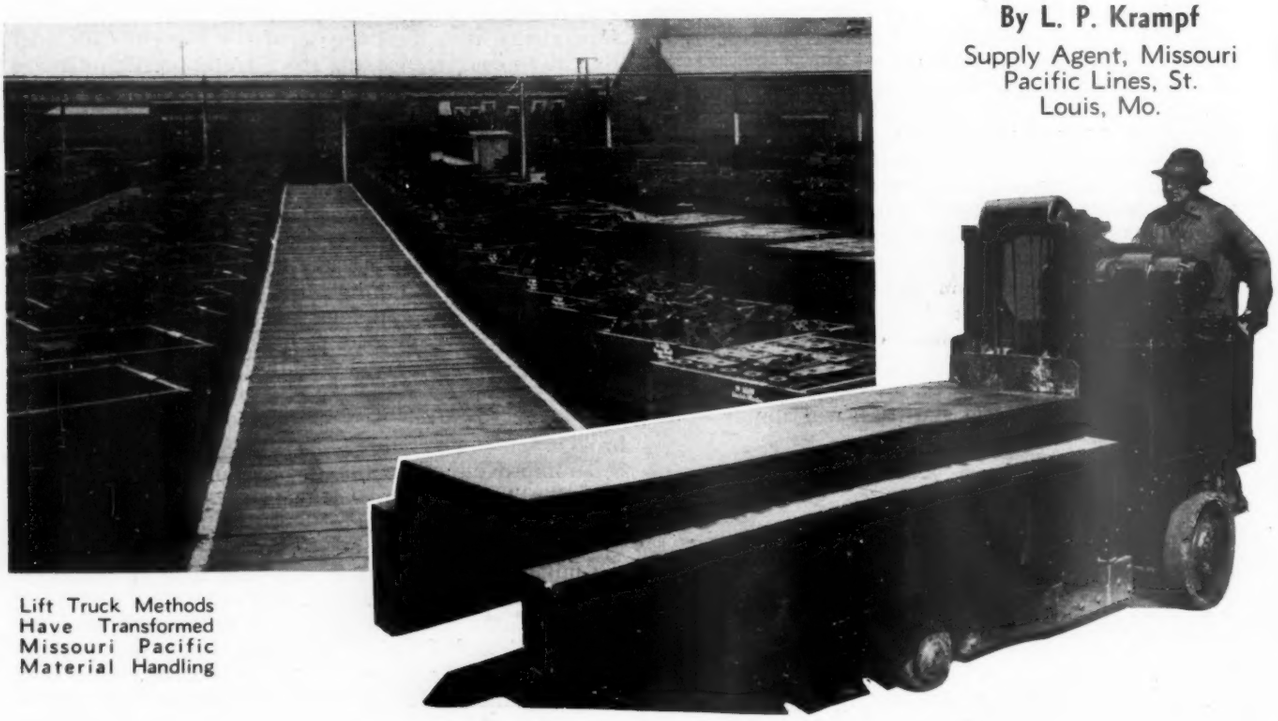
At no time since the beginning of claim prevention activities, says the report, have the claim conferences proved so valuable and necessary as during this period when the meetings of other organizations were, of necessity, restricted. The conferences have met regularly and thus afforded an open channel for discussions on all topics pertaining to claim settlements and claim prevention.

Recognizing that there must be a change in methods to meet changed conditions, the plan of organizing terminal committees in all of the conferences was advocated by the committee during the past year. The plan contemplates that representatives from all branches of the service having to do with the handling of freight and express traffic in the larger terminals be organized for the purpose of meeting regularly and discussing the causes responsible for loss and damage. The fact that such meetings consume very little time of employees in the terminals, and do not require traveling, with expenses incident thereto, has proved an attractive feature. Questions of improving carloading methods, inspections at origin and destination points, the study of causes for rough handling, the supervision of over and short matching bureaus, and many other topics of like nature are continuously receiving attention at these conference meetings.

Skids Were the Answer on Missouri Pacific

Striking reductions in man-hours follow unusually large and thorough installation—Stores methods revolutionized

By L. P. Krampf
Supply Agent, Missouri Pacific Lines, St. Louis, Mo.



Lift Truck Methods Have Transformed Missouri Pacific Material Handling

ONE of the most important functions of the supply department is to handle its material with a minimum number of man-hours. To accomplish this requires modern methods of storing, shipping and delivering materials. Mechanical devices have become important factors to this end on the Missouri Pacific lines and they are using several different kinds for different purposes. Included are lift trucks and skids, which are believed to afford the most modern method for handling miscellaneous material. Experience having demonstrated that the major portion of the labor cost is to handle the general run of miscellaneous material which is used in quantities, efforts have largely been directed to controlling this labor cost by reducing the number of handlings necessary for each operation, and the entire system of handling this class of material is now built around the skid method, using power and hand lift trucks. The equipment in use consists of:

10	power lift trucks—3 ton capacity, 4 ft. lift
1	power lift truck —3 ton capacity, 6 ft. lift
30	hand lift trucks —3 in. lift
4,216	lift truck skids —box type
2,715	lift truck skids —platform type
225	lift truck skids —box type for coal, coke and charcoal
300	lift truck skids —platform type for brake beams
1	timber carrier —15,000 lb. capacity

The basic principle of the skid method is the avoidance of excessive handlings, and the plan has proved sound in actual practice, because the labor expense incident in handling material to and from storage bins, and to and from the floor of cars, has been largely eliminated.

Store Material in Portable Boxes

The use of storage bins has been abandoned for all fast moving units of material such as arch and fire brick, brake shoes, journal bearings, couplers and all other items used in quantities, and standard lift truck skids of the box type are used for storage. When this material is ordered in quantities, the storage skid becomes the shipping skid, and is loaded in cars for movement to the division stores where the contents remain on the skid and are removed from it as required. The storage in skids saves two handlings—the expense of transferring materials from trucks or trailers into bins at shipping stores, and the same expense at destination. Skids are also used for storing material that is not shipped in the same skid to outlying points. In this case, the empty skid is carried to the car, loaded and returned to its storage location, which saves the expense of transferring the material into storage bins.

Lift truck skids are used extensively for shipments between the main and divisional stores, thereby saving

four handlings—the expense of moving material from storage bins to trailers and from trailers to the floors of cars at the shipping store; also the expense of lifting material from the floor of the car to trailers, and unloading it into bins at destination. Where the material is ordered in small quantities, and the storage skid cannot be used for shipments, the material is collected with an empty skid and power lift truck, and when filled with various items ordered, is carried into the car. In this case, the saving is two handlings. At the 2 main stores which provide weekly shipping service to 21 stores, approximately 75 per cent of the material is shipped in lift truck boxes. The saving under this plan is estimated at $5 a car. At small or division stores where the expense of power lift trucks is not justified, we have provided car deck platforms adjacent to the store-room, and the skids are moved with hand lift trucks.

This method has speeded up the loading and unloading of cars to such an extent that cars can be released the same day they are received in nearly all cases. It is possible to load or unload cars with one operator in from one to two man-hours, which permits using the same car for other movements on the same date, thereby increasing the number of miles per car per day.

Man-Hours Slashed

Some of the lift truck operations which have saved many handlings, compared with former methods, are as follows:

Arch and fire brick are received from the manufacturers in box-type skids, and the material is left in them at either general or division stores until used. We unload and store one car of brick with one operator in 37 minutes. The former method of unloading from floor of car and then to cases or bins required 32 man-hours.

Locomotive brass castings are also received from the foundry in box-type skids. We store all brass castings, except the small patterns, on flat top skids, which are delivered to shops on the same type of skid. All brass castings are shipped to division stores in box-type skids. The scrap brass is accumulated in the shops in box-type skids, and is returned to the foundry in the same skids. Under this method, we load one car of scrap brass in one man-hour as compared to the former method, which required 32 man-hours.

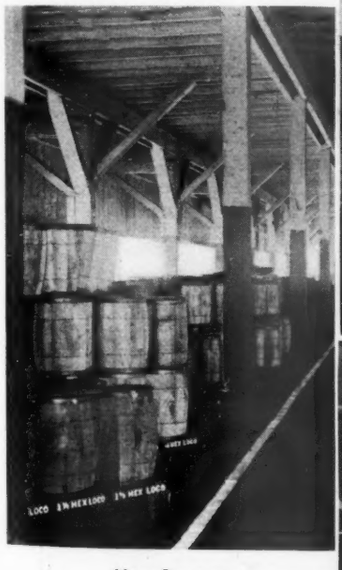
Journal bearings are relined at the reclamation plant, placed in lift truck boxes, and then held in storage, shipped to outlying points or delivered to the repair tracks in the same skid. The plan saves the bearings from damage, which was common when they were shipped loose in cars. The empty skids are returned from outlying points with scrap journal bearings. Counting from the time that the first operation is started in the reclamation plant, until the scrap bearings are returned to the foundry, this method saves 13 handlings over the previous practice.

Car forgings are placed in box-type skids as they are manufactured in the shop and then delivered to the storage platform where the contents remain in the skid. Shop-made bolts are handled in the same way. This method saves five handlings at the shipping store and destination.

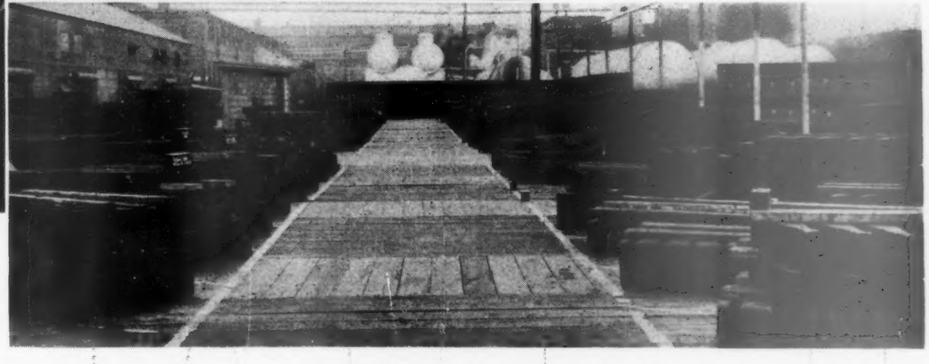
Brake beams are placed, as repaired, on flat top skids equipped with removable stakes, and the contents are left on these skids until used. Each skid contains 25 brake beams which are shipped to division stores and repair tracks on the same skid. We load one car of brake beams in approximately one man-hour.

The former method of stacking beams on the floor of cars and at storage locations required 22 man-hours. Boiler lagging is stored on flat top skids, four cases to the skid, and is delivered direct to locomotive on the same skid. Every supply department officer is familiar with the expense of unloading and handling a carload of locomotive jacket-steel. The skid method has solved this problem. When the shipment is received, flat top skids 8 ft. 4 in. long are carried to the car and each skid is loaded with 100 sheets having a total weight of 4,000 lb. The load is then returned by power lift trucks to the storage location where the contents remain

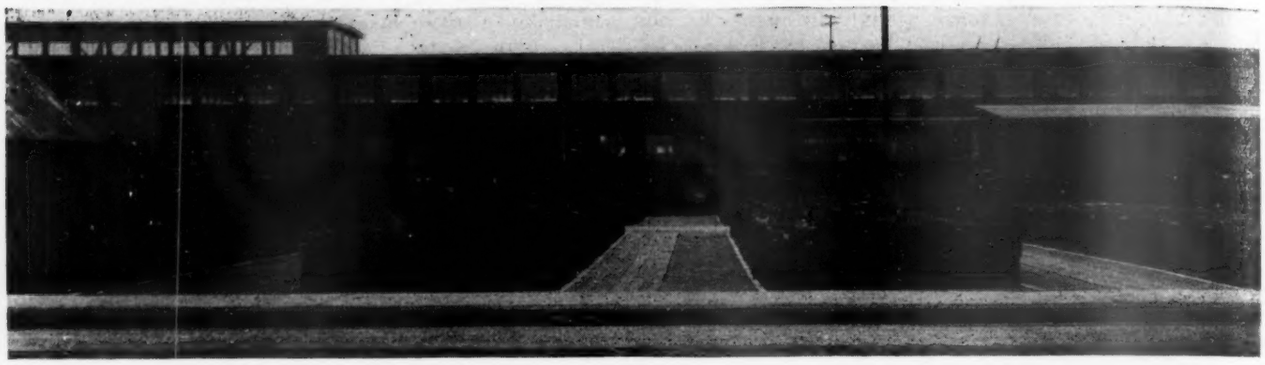
In the Basement—Everything on Skids



Keg Storage at Sedalia



Car and Locomotive Springs All on Skids



Car Material Yard at Sedalia Where Supplies are Largely Stored in Lift Truck Boxes

on the skid. This method eliminates entirely the labor expense of the old method of stacking the material on platforms at storage locations and reloading it on trucks or trailers for shipment to outlying stores.

A New Way to Handle Smithy Coal

We have abandoned the use of storage bins for blacksmith coal, coke and charcoal and have also discontinued the practice of shipping this material to outlying points on the floors of cars. When this material is received at the main stores, it is unloaded directly into box type skids which are 40 in. wide, 72 in. long and 30 in. deep, and are equipped with lids and hinged doors so that the contents can be used direct from the skid. Each skid has a capacity of 2,500 lb., and is used for storage at shipping stores, and for shipments to small outlying points where it is removed from the car with a hand lift truck, and delivered to the blacksmith shop. By this method, it is possible to handle five tons of blacksmith coal at the shipping store and destination in one man-hour, an operation which required 10 man-hours before.

How Blacksmith Coal, Coke and Charcoal are Stored at Sedalia, Mo.—The Boxes are Equipped with Hinged Top and Side Doors for Use in Blacksmith Shop

Unique Methods for Lumber and Forgings

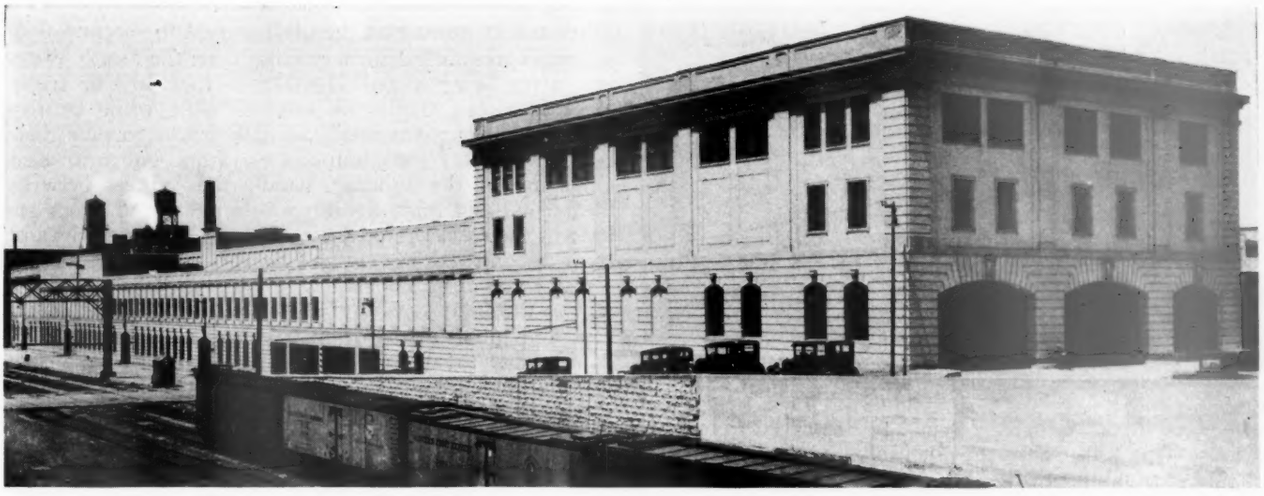
We have recently adopted the use of a power timber carrier for handling lumber and fabricated parts used in connection with car rebuilding programs. This machine carries a load 60 in. wide, 78 in. high and of any length up to a weight of 15,000 lb., and travels at a maximum speed of 35 miles per hour. It is very desirable for making long distance deliveries of heavy materials.

We found it advantageous to rearrange our lumber yards, which was done by covering the entire space with crushed stone produced from iron mines along our lines. The lumber is piled on skids or trestles, as it is unloaded from the car, and moved by the carrier to stock locations, where it remains until required in the mill. After placing the lumber in stock, its further handling is accomplished by one man operating the carrier.

Skid boxes have been designed for the use of the carrier in handling bulk forgings and castings, and by the use of a platform three or four regular lift truck skids may be handled at one load. Thus the carrier is adapted to lift truck installation. By enlarging the shop doors, we have been able to operate the carrier in and out of buildings, thereby reducing the cost of intershop movements and serving mill machines and erecting gangs direct.

These are only a few of the skid operations on our lines, but they illustrate the possibility of economy offered by this modern method of handling materials, which will, if adopted and placed in operation, reflect substantial decreases in the charges to "Stores Expenses," which, in the final analysis, is the measuring stick of an economically-operated supply department.

THIRTY-TWO OBSERVATION CARS accommodating 81 persons each, constitute the "moving grandstand" which the shops of the Central Vermont at St. Albans are preparing for the annual boat race between Yale and Harvard, which is scheduled to be held on the Thames River at New London, Conn., on June 19. For the 2,592 seats thus afforded, advance reservations have already been received in large numbers. Besides the "big race" at 7 o'clock in the evening, the observation train will be utilized in the morning for two minor races which are to be rowed over the upper half of the four-mile course.



A View of the Terminal From the Low-Level Tracks

C. & N. W. Completes $4,000,000 Express Terminal

New structure at Chicago to save time in handling both inbound and outbound movements

PRACTICAL completion of the extensive five-year building program of the Chicago & North Western in the vicinity of Chicago, involving an expenditure of more than $27,000,000, was realized on May 1, when the new express terminal which this company has constructed for the use of the Railway Express Agency was placed in service. The construction of this building involved an outlay of about $4,000,000. By means of this new terminal it is expected that at least an hour will be saved in the handling of inbound shipments, and that shippers will be allowed about that much additional time in the collection of outbound shipments.

A Three-Level Structure

In the design of the terminal, the problem was to develop a structure which would conform to three distinct levels of tracks and city streets. The upper or third level is that of the four main tracks of the Galena division of the North Western, which in the vicinity of the terminal are about 30 ft. above the ground level. The house and lead tracks serving the new terminal are on the level of these main tracks, which extend in an east and west direction.

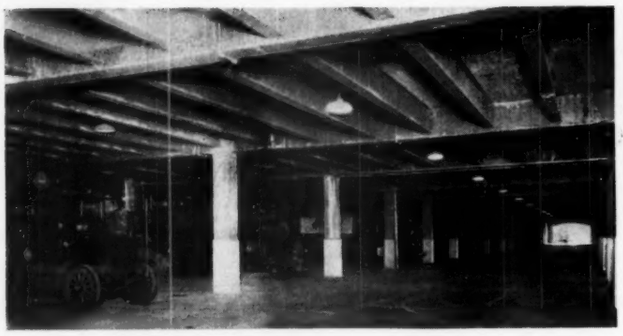
The middle or second level is formed by Milwaukee avenue and Halsted street which mark the east and west ends of the terminal, respectively. Immediately south of the Galena division of the North Western, these streets are carried on viaducts over low-level tracks of this road as well as joint tracks of the Chicago, Milwaukee, St. Paul & Pacific and the Pennsylvania still farther south. These streets pass under the Galena division main tracks on the approaches to the viaducts over the low-level tracks, where they are at about half the height of the elevated tracks.

The lower or first level of the express terminal is formed by Kinzie street which extends parallel with the Galena division and marks the southern boundary of the new building. This street is at the level of the low tracks, connecting with Milwaukee avenue by means of a paved ramp. It is connected with Austin avenue, a parallel street just north of the Galena division tracks, which is on a level with Milwaukee avenue and Halsted street, by Union avenue which passes under the building and the tracks. This subway rises on a sharp grade from Kinzie street and divides the lower floor of the terminal into two distinct units, which line of demarcation is followed also more or less consistently throughout the upper floors of the building.

Milwaukee avenue extends northwesterly at an angle of 42 deg. with east and west streets and intersects Union avenue at Austin avenue. This layout gives the east end of the lower floor the shape of a right triangle with the main entrance and driveways to the second and third floors at the southeast angle. West of Union avenue the new building has three floors while east of this street it is a story higher. The overall dimensions of the building are 776 ft. on Kinzie street, 180 ft. on Halsted street, and about 290 ft. on Milwaukee avenue.

The Layout

Three house tracks and a switch lead or running track, comprising about 9,900 ft. of trackage, have been provided for handling express cars into and out of the terminal. The running track extends from Jefferson street to a point between Carpenter and Curtis streets, a distance of about 3,000 ft., and connects with the south main track of the Galena division at each end. The tracks are constructed at the main-track level on a fill



Looking East Along the South Teamway on the Second Floor

which is supported on the south by a concrete retaining wall. This wall marks the north boundary of the building, although the three house tracks together with the platform serving them are covered by a canopy that is carried by a wall supported in the new embankment between the running track and the outside house track.

The entire first floor of the building is designed for the housing and servicing of motor trucks, of which there will be approximately 275. The east end of this floor also houses the boiler-room, the coal storage bin, a transformer room and a room for charging the batteries of electric trucks which latter facility however, will not be brought into use at this time. The truck-servicing facilities on the first floor include three truck-washing racks. Entrance to the west end of the first floor is gained from Kinzie street, while at the east end doors open into Union avenue.

At the east end of the second floor are located an employees' room, a charging room for industrial trucks, and a room for the storage of articles of such value as to warrant special protection. This room is separated from the main building by fire walls pierced by automatic fire doors. Entrance to all parts of the east end of the building except to the first floor is gained from Milwaukee avenue. The remainder of the second floor is known as the city pick-up and distributing room, and is somewhat comparable to the outbound section of a freight-house. A loading and unloading platform 50 ft. wide and about 500 ft. long extends down the center of this section and is flanked on each side by a driveway. Express trucks enter this floor through an opening on Halsted street and by means of two drives leading from Milwaukee avenue, both of these streets being practically at the level of this floor.

Operating Features

Trucks containing only express for shipment via the North Western are driven by means of ramps directly to the third floor to eliminate unnecessary handling. All other trucks unload on the platform on the second floor where express billed for destinations on the North Western, after being sorted, is taken to the third or track-level floor for loading in express cars, while express going to other roads is reloaded in trucks to give them capacity loads. Two four-ton elevators, one near each extremity of the building, handle the express between the second and third floors. Peele motorized doors are used in the elevators on these floors. The west elevator connects only the second and third floors while the east elevator serves all floors.

Looking East on the Third or Track Level Floor

The third floor, where express is unloaded from the cars and into trucks for distribution about the city, is comparable to an inbound freight house. The major portion of this floor is devoted to facilities for this operation, although at the east end a freight room and a warm room for the storage of perishables are provided. The openings leading to the warm room are also protected by automatic fire doors.

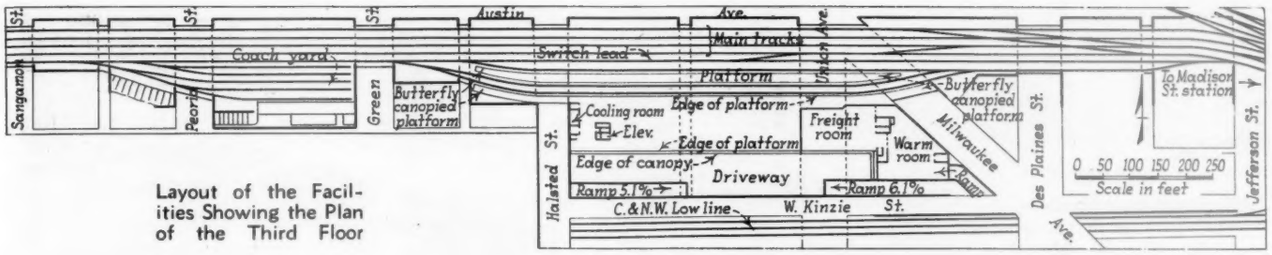
The driveway on this floor is 80 ft. wide and 550 ft. long and is not covered. Express trucks gain access to this floor from both Halsted street and Milwaukee avenue by long, covered ramps. The main section of the platform is 100 ft. wide and 500 ft. long, additional length along the near house track being provided by a 12-ft. concrete platform about 200 ft. long at each end. An island platform 16 ft. wide having a total length of more than 750 ft. is also provided between the second and third house tracks. Where it protrudes beyond the main structure, this as well as other platforms are covered with butterfly canopies. In order that express may be handled directly from the warm room to trucks, a platform is also provided at the east end of the driveway.

A cooling room and a cake-ice storage room are provided at the extreme west end of the platform on the third floor, supplied with ice from a three-ton refrigerating plant. An interesting feature of the main platform on this floor is the provision of a rabbet in the edge of the platform next to the track, on which the sides of container cars used in store-door service will be supported. Until such time as these cars are brought into service at this terminal, the rabbet will remain filled with concrete flush with the edge of the platform. The doors that separate this platform from the open-air driveway are of the vertical-lift type and were supplied by the Federal Steel Sash Company. The tailboard side of the platform is provided with diamond-steel plates to preclude the possibility of slipping.

A fourth floor, confined to the east end of the building, houses the locker room, the clerical rooms, a file room, and the drivers' room with the settlement pens. Protection against possible robberies in the latter room, where considerable sums of money are handled, is provided by a narrow, metal-lined, bullet-proof gallery along one side of the room for armed guards. The walls of the gallery are pierced by vertical slots containing bullet-proof glass, which permit the guards to "cover" any part of the room.

Type of Construction

The building has a structural steel frame and reinforced concrete floors, with the beams and columns fireproofed with concrete. The exterior and partition walls are of brick. The exterior walls are trimmed with Bedford limestone on the Milwaukee avenue end and elsewhere in terra cotta colored to match the limestone. Concrete caissons carry the load of the building to hardpan which in this vicinity is at an average of nearly 70 ft. below the surface of the ground. A total of 186 caissons, 4 ft. in diameter and belled at the bottom to a



Layout of the Facilities Showing the Plan of the Third Floor

diameter of 6 or 7 ft., were provided under the main structure. Additional caissons were sunk to support the abutments required at the ends of the embankment on each side of Union avenue and at the east line of Halsted street, as well as the retaining wall along the south side of the embankment. The largest caissons used are those under the Halsted street abutment, which have a diameter of 7 ft.

Design of Wall and Island Platform Footings

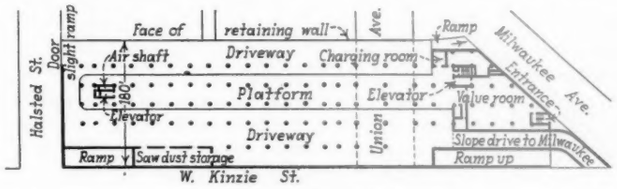
The fact that the north wall of the building, which carries the load of a roof span that extends over the three house tracks and part of the floor space on the third floor, has its foundation in a new fill that is necessarily subject to settlement required the use of special precautions in the design of the footings on which the wall is carried. The wall, therefore, is supported on concrete pedestals carried on groups of four reinforced concrete piles driven into the embankment.

The necessity of providing for the settlement of the new fill was also the governing factor in the design of the island platform. This platform consists of unit reinforced concrete slabs supported as simple spans on low concrete bents carried in the fill on small spread footings. To compensate for anticipated settlement, provision is made to restore the surface of the platform to its original level by jacking up the slabs and inserting concrete blocks or shims between them and the tops of the bents. No connection is provided between the island platform and the main platform, dependence for communication being placed on the proper spotting of the express cars to permit of trucking through them.

On the platforms, and elsewhere where the floors will be subjected to the wear of metal-tired hand trucks and other express-handling equipment, the concrete has been treated with a metallic hardener to give it increased resistance to wear. On the other hand, a granite aggregate was used in the floors of the garage and the drives which, in the main, are subject only to the wear of rubber-tired vehicles. The waterproofing membrane, which overlays the concrete floor of the open driveway on the third floor, is protected by a 4-in. concrete-wearing surface containing granite chips. The ramps leading from the third floor to Halsted street and Milwaukee avenue, which are on 5.1 per cent and 6.1 per cent grades, respectively, are paved with granite blocks.

Plate Girders and Trusses Support Roof

The roof over the platform on the third floor is supported on trusses having a clear span of about 70 ft., while plate girders having a clear span of nearly 80 ft. carry the roof over the north portion of the platform and the house tracks. With the exception of the roofs over the ramps connecting the third floor with the streets and over the pent-houses at the tops of the elevator shafts, which are of concrete poured in place, the entire roof area consists of roof tile, constructed of Haydite



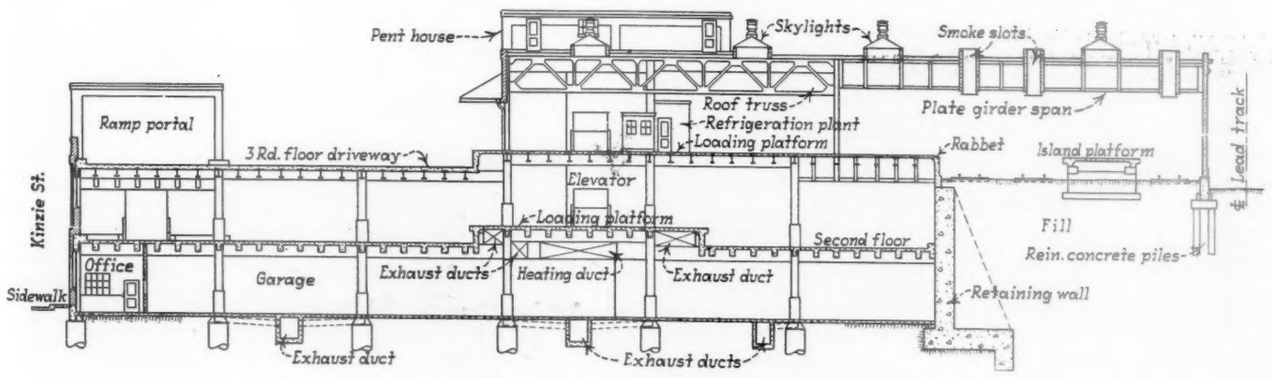
Plan of the Second Floor

light aggregate, furnished by the Federal-American Cement Tile Company.

Light is admitted to the platforms on the third floor through four lines of skylights 500 ft. long. There are a total of 75 separate skylights, each of which is topped with a ventilator. Three lines of skylights are over the main platform and the fourth line serves the island platform. The skylight wells are framed in cast-in-place concrete and are glazed with wire-glass.

Heating and Ventilating

The smoke slots above the three house tracks are each 500 ft. long and are lined with ¾-in. Transite asbestos board held in place by cadmium-plated bolts. Where the plate girders extend through the smoke slots they are encased in concrete and protected at the bottom by cast iron blast plates.



A Cross-Section of the Structure West of Union Avenue

A View Taken From a Point West of Halsted Street

An extensive ventilation system had to be provided for those portions of the building in which gasoline-powered vehicles are operated indoors, namely, in the garage and on the second floor. In the garage, where the system was designed to provide 12 changes of air per hour, a combined supply and exhaust system was provided. For the west garage two fans, with a capacity of 70,000 c.f.m. each, exhaust air from outlets in the bases of the columns, and a fan of 106,000 c.f.m. capacity delivers air to inlets near the ceiling level. This air is heated in winter by Chinook coils in a housing adjacent to the fan. For the east garage an exhaust fan of 50,000 c.f.m. capacity has been provided, while fresh air is supplied by three unit-heater sets with a capacity of 13,000 c.f.m. each.

On the second floor the exhaust from the motors of express trucks that are backed up to the platforms is drawn through openings below the tailboards by an exhaust fan of 62,000 c.f.m. capacity. All the fans in this structure were furnished by the American Blower Company, and the operating motors by the Allis-Chalmers Manufacturing Company.

The heating of that part of the building not covered by the systems described above is done by direct radiation, with the exception of the freight and warm rooms on the third floor which are heated by eight unit-type heaters, with capacities ranging from 1,800 to 4,725 c.f.m. each.

In the design of the terminal, provision was also made for the servicing of express cars, this function being accomplished in a 22-car coach yard which has been constructed just west of the terminal between Peoria and Green streets.

Extensions to Subways

The addition of the running track and the three house tracks to the four-track elevated line required the construction of extensions to all of the street subways within the limits of the running track. Extensions of sufficient length to carry four tracks were required at Milwaukee and Union avenues and Halsted street, while the extension at Des Plaines street, which is just east of Milwaukee avenue, carries only the running track and one house track. At the remainder of the streets, it was necessary to extend the subways to carry the running track only. Nearly all these extensions consist of the steel trough type of floor construction carried on concrete abutments with intermediate steel bents at the curb lines and at the middle of the street.

At two points, the embankment is supported on the south by crib walls constructed of Federal concrete cribbing. One of these sections, just east of Green street, is about 65 ft. long and has a maximum height of nearly 26 ft. The other section of cribbing, just west of Halsted street near the west end of the terminal building, has an average height of 21 ft. and is slightly more than 40 ft. long.

Drainage for the house tracks of the terminal is provided by ingot iron troughs covered by perforated half-pipes of the same material. These pipes and troughs are laid on each side of and between the tracks.

The method by which construction contracts for this building were awarded was somewhat unusual in that there was no general contract, individual contracts for the work of the different trades being awarded separately. Company forces erected the steel for carrying the house tracks over Halsted street and Milwaukee avenue and also for extending all of the street subways.

The design and construction of this project was carried out under the general supervision of the late W. J. Towne, chief engineer, until his death, after which time the work was carried on by Mr. Towne's successor, C. T. Dike. L. C. Winkelhaus, assistant engineer, was in direct charge of the design of the structure while the field work was supervised by F. K. Brewster, also assistant engineer.

* * *

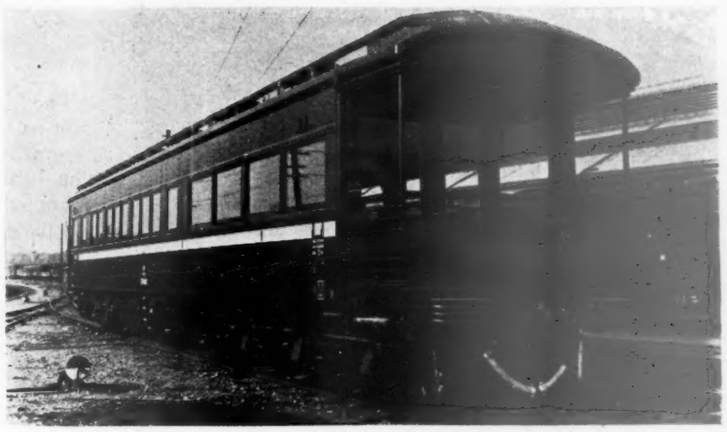
Method of Protecting Boiler Tubes on the Northern Pacific

Observation - Parlor Cars on the Japanese Imperial Railways

Ancient oriental arts blended with modern occidental structures result in pleasing and effective interiors

By O. Yamashita

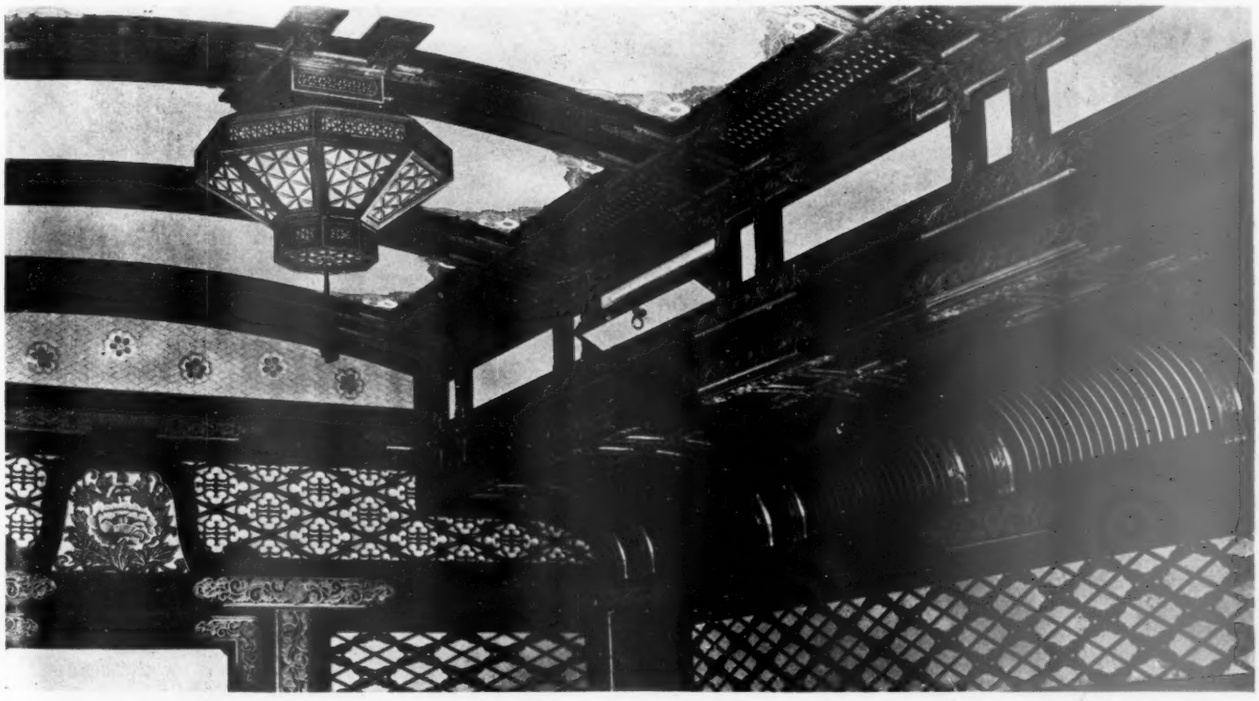
Engineering Bureau,
Department of Railways,
Tokio, Japan



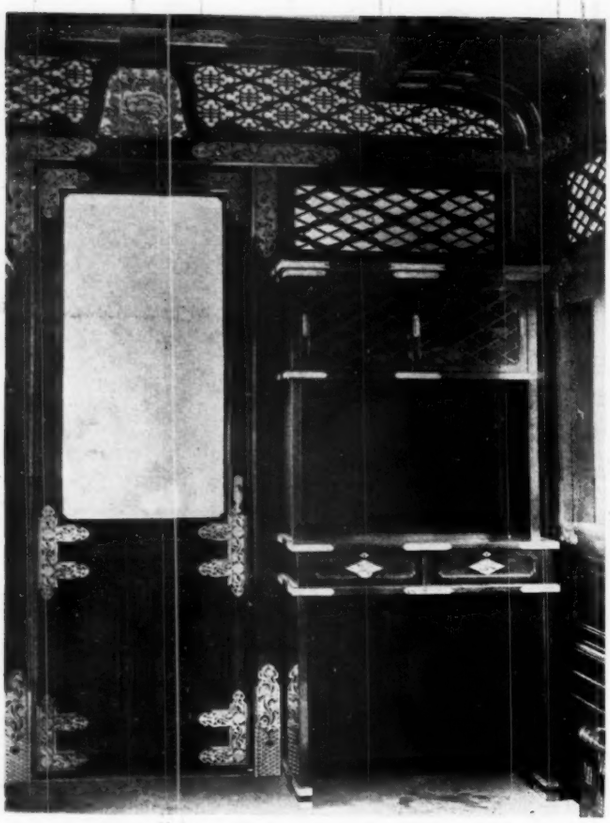
Observation-Parlor Car Built in the Oi Shops of the Japanese Imperial Railways

THE Imperial Government Railways of Japan have replaced with newly built cars of steel construction the old wooden first-class observation-parlor cars, built in 1923 and used in the first- and second-class limited expresses running on the Tokaido line, from Tokio to Shimonoseki, along the beautiful sea-shores, by the side of the magnificent snow-crowned Fuji-Yama and through the fresh verdure of picturesque mountains.

Three of the five new cars, built in the spring of 1930 at the Oi shops of the Imperial System, have the observation room finished after the modern European mode. The other two cars, completed at the end of the year at the same works, are decorated in the old Japanese style, making a striking contrast. Both interior schemes of decoration are equally attractive and pleasing to sit in, one showing plain modernity and the other splendid an-



Ceiling of Car with Oriental Interior Decoration—Note the Design of Ceiling Lamp and the Ornamental Bell-Shaped Plate Over the Door



Combination Book Case and Writing Desk

tiquity, but both affording the utmost in comfort and facilities for traveling.

The floor plan is similar for both types. The only difference is the buffet, which is provided in the parlor of the cars of modern style and dispensed with in the cars having the ancient decoration. The principal dimensions of the cars are as follows:

Length (over couplers)	65 ft. 7 7/16 in.
Width, outside	9 ft. 2 3/8 in.
Width, inside	8 ft. 6 in.
Height from rail to top of roof	9 ft. 7 1/4 in.
Light weight	83,900 lb.
Seating capacity:	
Parlor cars, with buffet	13
Parlor cars, without buffet	18
Observation room, (five cars)	11 persons

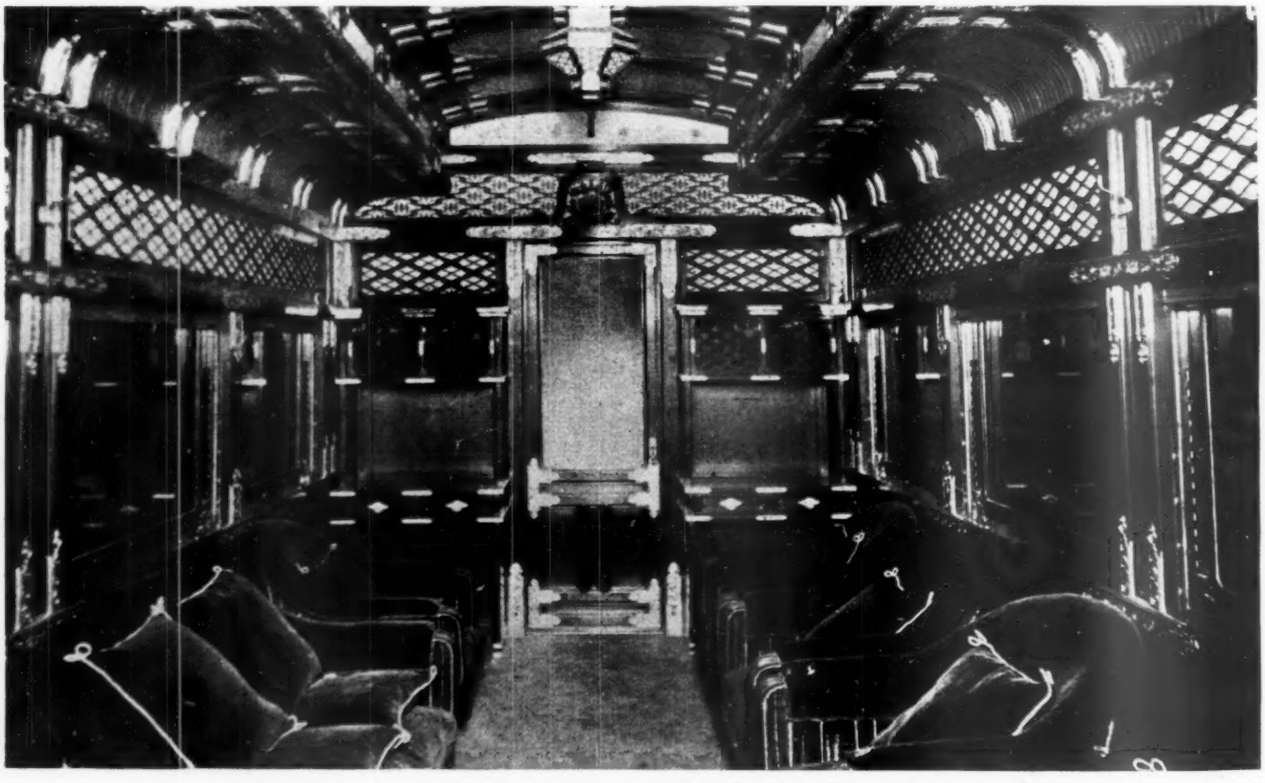
Two Cars Have Occidental Interiors

The observation room in the first two cars, which were built in the spring, is an example of the modern style of decoration, as may be seen in one of the illustrations. The headlining, including the lower curved ceilings, is enameled in light cream yellow, with gold stripes. The end-plate girders are fancifully decorated with golden stripes having at the center an ornamental disc, painted in faint colors of pleasing shades. In the summer the disc is removed and replaced with an electric fan.

The side finish is varnished in dark color, the side head panels being decorated with square figures modeled after the old Japanese pattern, but harmonizing with the modern design of western style. A number of reed chairs and one davenport with soft cushions are furnished in the observation room. A book-case combined with a writing-desk is placed in a corner of the room, where an ample supply of literature pertaining to travel, etc., is provided.

Seating Arrangements

The first-class parlor is of neat design, affording ample seating space. There are two kinds of seats; namely, revolving chairs and fixed cross seats, both of which are upholstered in dark green plush. A small drop table is provided for each revolving chair. A table covered with



Interior of One of the Cars Decorated After Japanese Sixteenth Century Style

Observation-Parlor Car With Occidental Interior—The Large Circular Plate in the Center of the Circular Decoration Over the Door Is Replaced by a Fan in Summer

green cloth can be set between the fixed cross seats for writing or for playing cards or chess.

Three Cars With Oriental Interiors

The observation rooms of the other cars reflect Japanese architecture of the sixteenth century.

Those who visit Japan seldom leave the country without devoting one day or more to sight-seeing at Nikko, the Shoguns' mausolea. This is a delightful spot with groups of old temples and shrines. There is a common saying: "One shall not speak of beauty before seeing Nikko." These observation cars are the Nikko temples in miniature.

Each upper-ceiling panel, enameled in cream-yellow white, is set in tessellated frame work, finished black in "Urushi," a Japanese lacquer. A colored relief ornament of chrysanthemum flower and leaves is laid on the ceiling panel at each corner, as shown in the illustrations. The side and end panels, posts and girders, are all finished in black Urushi lacquer. The wainscot panels, including those in the doors, are also lacquered black, the surfaces being polished mat and the surrounding filet faces being outlined with a cinnabar red line.

All the joints of the various members are covered with ornamental gilt plates of open-work arabesque design, glyphographically made of copper. These gold sculptures make a rich combination with the black lacquered ground. The upper-end plate girders with groups of engraved hatched lines are enameled in the same color as the ceiling panels and scattered with cherry-blossom ornaments.

There is a bell-shaped ornamental plate of gorgeous peony-flower relief above the door at the center of the lower end-plate girder, which is decorated with cinnabar lacquered flower figures set in a black lacquered rhomboid lattice on the pale yellow-white panel. The bell-shaped plate is replaced by an electric fan in the summer. The side panels above the windows are ornamented with wood open-work of rhomboid design. The gilt ceiling lamp shades are after the oriental pattern of a temple lantern.

Centralized Traffic Control on the P. & P. U.

(*Continued from page 1142*)

at Pekin, amounts to $19,347 annually. The improvements, including the centralized traffic control system, a dispatcher's telephone system with 20 telephones and loud speaker equipment, additional flashing-light crossing signals, and the construction of a new tower at the Illinois River plant involved a total charge to capital account of $96,709. The pay-roll saving explained above aggregates 20 per cent of this investment. There is no increased charge for maintenance, as the force formerly required for the interlockings is now maintaining the new system.

The installation has not been in service long enough to determine the benefits of the greater facility of train movements as compared with the previous method of operation, but a comparison of the train sheets before and after the system was placed in service shows that numerous train stops and delays are being eliminated.

A part of the construction, including the bonding, concrete foundations, bridge erection, etc., was handled by the signal department forces of the P. & P. U. and the remainder of the construction of the centralized traffic control system was performed by the General Railway Signal Company. The entire installation was made under the supervision of E. H. Thornberry, chief engineer of the Peoria & Pekin Union.

Fifth Oil-Power Conference at Penn State

A TOTAL of 122 engineers, representing railroads, oil refining companies, technical education and research, registered at the Fifth Oil-Power Conference which was held Friday, May 22, in the Nittany Lion Inn, State College, Pa., under the joint auspices of The Pennsylvania State College and the Lubrication Engineering Committee of the Petroleum Division, American Society of Mechanical Engineers. Seven papers were presented at two sessions, of which the following were presented at the morning session: Lubricant Testing, by E. G. Boden, engineer, and O. M. Maag, oil chemist, Timken-Roller Bearing Co., Canton, Ohio; Bearing Design in the Light of Oil-Film Pressure Investigations, by L. J. Bradford, professor of machine design, Penn State; Fluid Film Lubrication as Applied to Railroad-Journal Bearings, by F. O. Willhofft, secretary and general manager, Isothermos Corporation of America, New York; and an informal discussion of lubrication of railway bearings by Dr. M. E. McDonnell, chief chemist, Pennsylvania, Altoona, Pa.

The afternoon session was devoted to a symposium on internal-combustion engine lubrication with lubricants from: "Coastal Crudes," by A. Ludlow Clayden, Sun Oil Co., Philadelphia, Pa.; "Pennsylvania Crudes," by C. M. Larson, supervising engineer, Sinclair Refining Co., New York, and "Midcontinent Crudes," by E. R. Lederer, vice-president, Texas Pacific Coal and Iron Co., Fort Worth, Texas. The technical sessions were followed by a dinner at the Nittany Lion Inn, at which several informal talks were given.

Fluid-Film Lubrication

Mr. Willhofft's paper was devoted largely to a description of the Isothermos method of lubricating car journals. A description of the device was published in the *Railway Age*, Daily Edition, June 20, 1928. He stated that one of the requirements in car-journal lubrication was that the supply of oil at any speed must be sufficient to maintain an unbroken film of the necessary thickness over the entire load-carrying surface. In view of the extremely small thickness of the film the amount required for this purpose is naturally very slight. The second requirement, he said, was that the supply of oil at any time must be sufficient to make up for the oil lost by leakage at the two ends of the bearing due to the flow from the maximum pressure zone to the two ends where atmospheric pressure exists. In order to preclude the breaking down of the film at any point the supply must be largely in excess of the requirements.

Waste-packed journal boxes, he said, cannot meet these conditions, because no matter what the material of the packing, no matter what methods are used to keep the packing saturated with oil and in contact with the journal, the amount of oil deposited on the journal by the packing is less than the minimum required for fluid-film lubrication. Furthermore, he said, normal flow of oil through the packing cannot take place unless the temperature is sufficiently high. The only source of heat available is friction, or in other words enough heat has to be created by friction to make the oil flow which means a bearing temperature well above 100 deg. F. This process, particularly in cold weather, requires quite a long time. During this period, he pointed out, the supply of oil is still more deficient, lubrication depending upon the oil held in the clearance spaces by capillary attraction while the journal is at rest. This supply at best is scant, and sufficient only to form a greasy film adhering to the metal surfaces and apt to break down altogether. Most of the wear of waste-packed bearings, he stated, undoubtedly takes place during these periods of warming up, and, what is far more serious from the economic point of view and furnishes an additional striking argument in favor of positive flood lubrication, the tonnage rating has to be materially reduced during the cold season as long as waste-packed journal boxes are used.

Mechanical Lubricators

Mr. Willhofft said that it is not so much the inherent inability of the waste-packed bearing to supply fluid film lubrication about which little was known, but the fact that its successful operation depends on human skill and watchfulness. Certain failings, which are well known, have naturally inspired numerous inventors to develop more positive devices for railway-journal lubrication. In the patent literature, he said, we find mechanical lubricators for car journal boxes as early as the middle of the last century. That in spite of its manifest shortcomings and of the activity of the inventors the waste-packed journal box still is the universal standard in this country, would seem to indicate that the more positive and more efficient methods of lubrication successfully employed in other lines of engineering are not adapted to the severe requirements of railroad practice. The reason, he pointed out, is that oil rings, pumps, rollers, chains, gears, disks with wipers and other devices subject to wear introduce a new element of risk and, at best, require frequent inspections and replacements to prevent failure; in other words they still depend for success on the human element just as the waste packing does. Furthermore, the best of mechanical means for supplying the bearing with oil are useless unless at the same time the oil is retained in the journal box so that the latter may be operated over long periods of time without requiring any attention whatsoever. Another requirement, he stated, is that the oil must be retained irrespective of and without dependence upon the dustguard, so that failure of the dustguard will not endanger the oil supply, also because the problem of making a dustguard dust and water tight and, at the same time, durable is rendered more difficult and uncertain when oil is permitted to mix with dust.

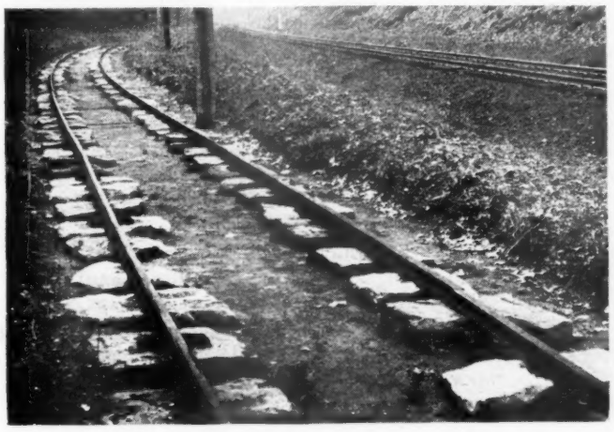
Discussion by Dr. McDonnell

Dr. McDonnell in his discussion of lubrication of railway bearings reviewed the progress made in hot-box prevention since the early nineties. Freight-car-miles per hot box, he said, had increased from around 10,000 in 1900 to over 450,000 at the present time, while passenger-car-miles per hot box had increased from an average of 20,000 to around 1,250,000 miles. He spoke of the need of the railroads following a uniform definition for hot box detentions in the compilation of records. Dr. McDonnell also spoke of the progress made in car lubricating oils since the late nineties. Lubricants containing lead, whale oil and soap were generally used by the railroads until 1918 when mineral oils were adopted. He stressed the need of further experiments with car-lubricating oils with varying viscosities.

Track One Hundred Years Old

NEAR Jamesburg, N. J., on the line of the Pennsylvania between Bordentown, N. J., and South Amboy, about 20 miles northeast of Trenton, there is a piece of track 300 ft. long which is now one hundred years old. This bit of track, lying close to the modern line of the Pennsylvania, was a part of the original Camden & Amboy, the first railroad providing service between New York and Philadelphia, which was opened in 1831. The location is marked by a large sign calling the attention of all passers-by to its historic character. The Camden & Amboy was leased by the Pennsylvania in 1871, and has since been a part of that system.

This is not only one of the first bits of railroad laid anywhere in the United States but it is also notable as having an original design of rail. According to a memorandum which has been issued by the Pennsylvania, Robert L. Stevens, president of the Camden & Amboy, went to England in order to look for rails, nothing acceptable having at that time been produced in this country; and during his idle hours on shipboard he worked out "an entirely new type of rail" discarding the strap-iron-on-timber type which had been in use to some extent in this country, and also the English designs produced up to that time. It will be seen that the design does not materially differ from the standard T rail in universal use in America today. It is stated that the ends of the rails were supported on wrought iron plates. Joints were connected by splice bars about 15 in. long, riveted, with one hole in each rail. These rails weighed about 40 lb. per yard and the standard length was 16 feet.



Ancient Track at Jamesburg, New Jersey

Track was laid in the summer of 1831 from Bordentown northward and the line was completed to South Amboy late in 1832.

It is said that the stone blocks, about 2 ft. square, were purchased from the prison authorities at Sing Sing, N. Y.; and that when, in the construction work near the northern terminus (South Amboy) the blocks were not regularly supplied, some wooden sleepers (i.e., cross ties) were used as a temporary resort, the rails being spiked directly to the sleepers. These gave such satisfactory service that they were permitted to remain and, as every one knows, the use of wooden ties quickly became universal.

It is believed that this piece of track was the first in the world to be laid with rails spiked directly to wooden cross ties.

It was on this road that the locomotive "John Bull," now preserved in the Smithsonian Institution at Washington, had its notable career.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended May 30, which included a holiday, amounted to 710,934 cars, a decrease of 149,130 cars as compared with the corresponding week of last year and of 261,891 cars as compared with 1929. Although this was a decrease as compared with the previous week which did not include a holiday the decrease as compared with the two years before was less than it has been recently. The largest proportional decrease was in ore loading. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

Week Ended Saturday, May 30, 1931

Districts	1931	1930	1929
Eastern	162,458	190,750	221,166
Allegheny	137,181	173,464	204,210
Pocahontas	43,504	50,014	56,476
Southern	110,470	122,689	137,817
Northwestern	94,298	137,856	154,600
Central Western	102,670	118,771	129,679
Southwestern	60,353	66,520	68,877
Total Western Districts	257,321	323,147	353,156
Total All Roads	710,934	860,064	972,825
Commodities			
Grain and Grain Products	34,822	35,419	37,280
Live Stock	17,933	21,191	22,467
Coal	115,871	128,166	145,083
Coke	6,217	9,527	12,322
Forest Products	31,332	50,016	66,574
Ore	25,884	58,759	73,469
Mdse. L.C.L.	197,242	215,735	231,477
Miscellaneous	281,633	341,251	384,153
May 30	710,934	860,064	972,825
May 23	755,071	929,606	1,062,088
May 16	747,732	928,759	1,046,594
May 9	747,449	932,346	1,048,960
May 2	775,291	942,674	1,051,935
Cumulative total	15,988,192	19,481,593	21,325,072

The freight car surplus for the period ended May 23 averaged 623,658 cars, an increase of 14,987 cars as compared with the week before. The total included 299,437 box cars, 253,590 coal cars, 30,528 stock cars, and 16,242 refrigerator cars. For the last week in May the total was 615,924, including 306,319 box cars, 238,504 coal cars, 31,351 stock cars and 16,003 refrigerator cars.

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended May 30 totalled 46,971 cars, a decrease from the previous week of 4,202 cars and a decrease from the same week last year of 20,818 cars.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
May 30, 1931	46,971	26,101
May 23, 1931	51,173	27,890
May 16, 1931	50,493	28,271
May 31, 1930	67,789	33,587
Cumulative Totals for Canada		
May 30, 1931	1,053,394	625,570
May 31, 1930	1,272,886	797,415
June 1, 1929	1,408,198	949,122

Three Notable Train Accidents

THE Interstate Commerce Commission in two of its latest train accident reports finds occasion to make rather unusual recommendations; one of the cases (in Alabama) presenting conditions where disaster occurred in spite of the best present ordinary practice; and the other (in Michigan) illustrating the lesson, which has been made manifest by hundreds of collisions and derailments, that ordinary common-sense precautions—seemingly so obvious that a five-year old boy could not go wrong—need to be taught to all employees by the use of the time-consuming school of experience. Below are abstracts of these reports; also of another report dealing with an earlier accident, in Michigan, which the Bureau of Safety refers to in connection with the present report. While costly in property damage, it will be noted that no passengers were killed or injured there were no fatal injuries.

Open Draw

Louisville & Nashville, Hurricane, Ala., February 25, 12:55 a. m.—Northbound passenger train No. 98, consisting of locomotive No. 217 and six cars, approaching the drawbridge over the Alabama River, at moderate speed, was not properly controlled and the locomotive, tender and first car fell into the stream; the rest of the cars were stopped on the bridge, but the forward end of the second car extended about 20 ft. over the water. The engineman, fireman, baggagemaster and one Pullman porter were killed. The train had passed distant and home signals set against it and the engineman had applied the brakes at the usual point, near the distant signal; and he sounded the whistle as a signal to the man in the tower at the bridge to clear the home signal. The conductor thought the speed had been reduced to about the usual rate, 12 or 15 miles an hour (15 miles being the regular limit); but the bridge operator thought the speed was higher. The engineman had had about 27 years' experience in such capacity and had appeared to be in good health. An autopsy was performed on his body but nothing discovered. The damaged condition of the engine made it impossible to decide whether the engineman had applied the brakes at the last moment or if they had been set by the separation of the cars. The colored fireman was an employee of long experience. The engineman's record showed that he had been reprimanded several times for running over drawbridges too fast.

The report says that in the 30 days prior to this accident, the draw span had been opened 211 times (seven times a day) resulting in delay to 32 trains for a total of five hours and 13 minutes. The average number of trains daily was 23. It is possible, says the report, that had smash signals, automatic train control, or automatic cab signals been in use, this accident might have been prevented; * * * "The carrier should give careful consideration to the question of whether additional protection should be provided on this line."

Open Switch

Michigan Central, Town Line, Mich., March 6, 5:19 p. m.—Eastbound passenger train No. 10, consisting of locomotive No. 8202 and 11 cars, moving at about 60 miles an hour, ran over a misplaced facing point switch and was derailed on the curve of the side track. The locomotive and the tender were overturned, and stopped about 960 ft. east of the main track switch; the first car was destroyed and much other damage done. Only three persons were injured—the engineman, the fireman and the baggageman. The cause was the opening of the switch by the station operator immediately in front of the approaching train. Stop and cautionary automatic block signals were clear when the locomotive passed them.

The engineman was watching the train-order signal, which is on the left of the line, and he did not see the home signal immediately before his engine reached it. The fireman said that it was in the clear position until it became obscured from his side of the cab. It was after he lost sight of the signal, he says, that he saw a man walk across the track from the telegraph office, and back again; and then he saw that the switch was set for the diverging route. He immediately warned the engineman, but it was then too late. The operator, however, declared that the train was a mile away, and he assumed it to be the local freight, when he opened the switch. After the accident, the automatic train stop on the locomotive was found in application position and it is believed that an automatic brake application was initiated at the inductor 58 ft. back of the home signal, which signal is 516 ft. back of the switch; but there was not sufficient time or distance after the switch was opened in which to stop the train. (Reference is here made to the similar accident at Battle Creek, Mich., on the Grand Trunk, on February 7.) The report in its conclusion says that the switch for a diverging movement should not be operated directly in front of an approaching train until the train has been definitely identified, etc. * * * The operating conditions and practices at this point "should at once be given proper attention." * * * The operator had been in the service of the road since August, 1920. Nothing is said about his record. He had been at this station only six weeks. His error appears to have been due to confusion or neglect, not very clearly described, in connection with telephone reports from Wiard, 21 miles west of Town Line.

Grand Trunk, Battle Creek, Mich., February 7, 12:45 p. m.—Westbound passenger train No. 9, moving at about 20 or 30 miles an hour, ran over a misplaced switch and collided with a yard engine standing on a side track. One car was completely wrecked and much other damage done; 11 persons injured. The switch had been set for the side track immediately in front of the approaching passenger train, the switch tender having been informed by telephone that a freight train was to come ahead of the passenger train. This information had been given by an operator who heard, or thought he heard, on the telephone line, the statement that the freight had passed Bellevue, when as a matter of fact the statement (it is claimed) was not that the freight train was "by," but that it had "arrived." The operator who repeated this information had not been instructed to do so; and, says the report, if he wanted to volunteer information he should have obtained it from the proper authority. The switch tender is censured for opening a main line switch without definitely ascertaining that the approaching train was the one which he intended to head into the yard. An automatic block signal 3,000 ft. east of the switch indicated "proceed" when the train passed it; the railroad has promised to improve the connection between this signal and the switch, but, says the report, steps should also be taken to prevent information from being communicated in the irregular manner disclosed in this instance.

Odds and Ends . . .

Picked Out of the Air

Being ardent admirers of the popular pair of radio entertainers "Amos" and "Andy," Levi Deaton, section foreman on the Louisville & Nashville at Whick, Ky., and Mrs. Deaton have named their two-months old triplets Amos, Andy and Madame Queen.

Conleys by the Dozen

When P. W. Conley, superintendent of the St. Louis Terminals of the St. Louis-San Francisco, and Mrs. Conley celebrated their golden wedding anniversary with a family reunion at Chicago recently, 66 relatives were in attendance. They included five sons and five daughters, 20 grandchildren, sons-in-law and daughters-in-law, and numerous nephews and nieces.

Justifiable Curtness

A rather fussy young friend of mine wanted to travel to Worcester (England) the other day, but was rather doubtful about the effect of the snowstorm on the running of the trains. So she telephoned an excited question to the railway. "We," replied the harassed official with Olympian dignity and suavity, "are the Great Western Railway—not a tram-line."—London Morning Post.

The Appletons of Maritime Canada

When W. U. Appleton, general manager of the Atlantic region of the Canadian National, stood with a group beside a new eight-wheel switcher recently at Moncton, N. B., upon the occasion of its delivery from the mechanical department to the operating department, he duplicated a scene which had taken place 36 years before, at Moncton. In that group in 1895, standing beside an American type locomotive, of the Intercolonial, when Mr. Appleton was a machinist's apprentice, were J. McA. Appleton, superintendent of the Moncton shops, his grandfather, and J. Appleton, pit foreman, his father.

When the Conference Bust

A delegation from a neighboring town had come into Edmonton to protest to one of the railway companies against curtailment of service in their district. The train, they pointed out, had been running daily for years and it would be a great inconvenience to have it eliminated or cut down to a twice a week affair. The company pointed to decreased revenues and the need for economy. Suddenly one of the railway officials sat up in his chair and turning to the spokesman of the delegation, said:

"How did you gentlemen come into Edmonton?"

The answer was: "By bus."

And thereupon the conference broke up.—Edmonton Journal.

A Man-Killing Injunction

An atmosphere rather akin to the "black death" which spread over France and Belgium in 1930 has followed federal judges who sat on the case involving the injunction obtained by the Oregon-Washington Railroad & Navigation Company to stay the enforcement of the Interstate Commerce Commission's order that it construct 185 miles of new line across Oregon. Deaths of sitting judges caused two rehearings of the case. Testimony was first taken before a three-judge court at Portland on September 29, 1930. Two days after the hearing closed Circuit Judge Frank S. Dietrich died in an automobile accident at Boise, Idaho. The first rehearing of the case was held on December 9. A month after this rehearing District Judge Robert S. Bean died of a heart attack at Portland. The second rehearing was held on January 22. On May 3 Circuit Judge Frank H. Rudkin died of heart disease at San Francisco, but not before the injunction had been granted to the railroad on January 29.

A Mark to Shoot At

The Delaware & Hudson police department appears to possess the champion railway pistol team. Two large silver loving cups and six medals have been added to the trophy collection of the team, which has out-shot all but one of its competitors this year. The team won the National Police League's Championship cup by completing the six-match schedule undefeated, and placed second to the New Jersey State Police team in the Interstate Intercollegiate pistol contest at Trenton, N. J. The D. & H. team emerged victorious from a triangular match with the United States Military Academy and the New Jersey State Police, and Patrolman J. H. Overbaugh shot a score of 297 out of a possible 300 in a match with the Officers Reserve Corps, Albany sector.

A Rule Book of 73 Years Ago

All engines unprovided with lamps and running at night "out of time" were required to "keep their dampers open," to show a light, if they conformed to the rules of the Tallahassee and the Pensacola & Georgia, two railroads in Northern Florida which are now a part of the Seaboard Air Line. This rule and a number of others, which were a part of the "Rules For the Government of Employees" issued on April 3, 1858, sound rather queer, and even a bit "balmy," in the light of present day operating practice. Among these rules are:

Rule 8—As a general rule when trains meet between stations, the train nearest the turnout will run back. Any dispute as to which train shall retire is to be determined at once by the conductors, without any interference on the part of the enginemen. This rule is required to be varied in favor of the heaviest loaded engine or worst grades if they meet near the center.

Rule 13—Should a train run off or from any cause be stopped on the track at night, the red light must be instantly sent back to a safe distance to stop a train approaching in the rear, and the green light will in like manner be sent forward to stop a train approaching in the front. A half mile either way from where the train is stopped will be a safe distance, and at that point a fire must be built in the middle of the track, and a train hand stationed there who shall keep up the fire and keep the red or green light burning.

Rule 16—The sparkcatcher or chimney of an engine getting out of order, so as to endanger the safety of the train, the conductor must put the train on the first turnout and return his engine to Tallahassee for repairs.

Rule 17—The fireman will in all cases assist in putting in and taking out baggage, and all other work which may be required by the conductor in charge.

A special set of rules governed the "overseers" who appear to have had charge of negro laborers. Some of the rules pertaining to the "overseer" were:

Rule 11—Overseers must not strike a negro with any other weapon than a switch, except in defense of their person. When a negro requires correction his hands must be tied by the overseer, and he will whip him with an ordinary switch or leather strap not exceeding thirty-nine lashes at one time, nor more than sixty in one day, or for one offense, unless ordered to do so by the supervisor, and in his presence.

Rule 15—The use of intoxicating drinks by the employees on repairs of road is positively prohibited. Any overseer or other employee who keeps it in his shanty, or uses it in any other way than when prescribed by a physician as medicine, or who allows the negroes to keep or use it at the shanty, or on the work, will be fined and discharged.

Rule 19—No negro must be allowed to bring or to have at the shanty any fresh meat or poultry unless the overseer is satisfied he or she came honestly by it.

NEWS

Intrastate Rate Orders of I.C.C. Are Sustained

United States Supreme Court Upholds findings in Georgia and Alabama Cases

The Supreme Court of the United States has affirmed the decree of the federal district court for northern Georgia, 42 F. (2d) 467, dismissing the suit of the Georgia Public Service Commission and the State Highway Board of Georgia to enjoin the order of the Interstate Commerce Commission prescribing certain distance scales as maximum, reasonable or interstate single-line and joint-line rates between points in Georgia and points in other States, and finding that there was no transportation reason for the maintenance of a different basis for intrastate carload rates on certain commodities within the State of Georgia. [Rates on Chert, Clay, Sand and Gravel within State of Georgia, 122 I. C. C. 133.] In this suit the United States and the Interstate Commerce Commission were defendants. Carriers operating in Georgia and shippers intervened as defendants.

The Commission's order requires the carriers to establish rates "which shall not be lower, distance considered, than those contemporaneously applicable to interstate transportation of the same commodities, in straight or mixed carloads, between points in the State of Georgia, and from points in other States in southern territory, except Florida, to points in the State of Georgia, not exceeding the rates set forth in the Appendix to this report and heretofore found and prescribed as reasonable in No. 17517 for the interstate transportation of said commodities in straight or mixed carloads."

One contention of the plaintiffs was that while the order prescribes a minimum and a maximum basis for intrastate rates, the minimum basis is so vague and uncertain as to render the entire order void. The Supreme Court says: "The order here challenged is statewide in operation; and it governs a vast multitude of rates. Because of divergent conditions, a doubt may well arise in applying the rule prescribed in some particular situation. But possible uncertainty of application in isolated instances is not a sufficient ground for setting aside in its entirety by judicial process, a carefully drawn order, otherwise

(Continued on page 1172)

Private Room Fares Cut

The Chicago & North Western, the Chicago, Milwaukee, St. Paul & Pacific, and the Chicago, Burlington & Quincy have reduced the railroad fare for persons occupying individual rooms between Chicago and St. Paul, Minn., and between Chicago and Omaha, Neb., 20 per cent, for the months of June, July and August. Prior to June 5, the effective date, the rate was 1¼ times the one-way fare, while at present the regular rail rate applies.

Mechanical Division Convention Program

The Mechanical Division, American Railway Association, will hold its twelfth annual meeting in the Gold Room of the Congress Hotel, Chicago, June 23 and 24. The first announcement of the meeting stated that it would be held for three days beginning June 23. Holding both morning and afternoon sessions, it is expected that the business before the meeting can be transacted in two days. Should this be impossible, however, it will be continued into June 25 until the entire program has been completed.

The first day's meeting will be held from 9:30 a.m. to 5 p.m., daylight saving time, and the second day's meeting will be held from 9 a.m. to 5 p.m. The program is as follows:

Tuesday, June 23

Invocation—Rev. Francis J. Thomas, pastor, Calvary Methodist Episcopal Church
Address by R. H. Aishton, president, American Railway Association
Address by M. J. Gormley, executive vice-president, American Railway Association
Address by A. R. Ayers, chairman, Mechanical Division
Action on minutes of 1930 annual meeting
Appointment of committees on Subjects, Resolutions, Correspondence, etc.
Unfinished business
New business
Report of General Committee
Discussion of reports on:
- Nominations
- Safety Appliances
- Locomotive and Car Lighting
- Locomotive Design and Construction
- Car Construction
- Utilization of Locomotives and Conservation of Fuel
- Electric Rolling Stock

Wednesday, June 24

Address by the Hon. Frank McManamy, member Interstate Commerce Commission
Individual paper by Chas. G. Sebrell on Safety in Shops, Enginehouses and Repair Tracks
Discussion of reports on:
- Arbitration
- Prices for Labor and Materials
- Tank Cars
- Loading Rules
- Automotive Rolling Stock
- Wheels
- Brakes and Brake Equipment
- Couplers and Draft Gears
- Lubrication of Cars and Locomotives
- Joint Committee on Reclamation

Election of officers and members of General Committee

Railway Net for April Equals 2.22 Per Cent

Return for four months 1.4 per cent below that for same period of 1930

Forty-five Class I railroads operated at a loss in the first four months of 1931, of which 13 were in the Eastern district, six in the Southern and 26 in the Western district, according to reports compiled by the Bureau of Railway Economics.

Class I railroads in the Eastern district for the four months had a net railway operating income of $84,496,858, which was at the annual rate of return of 2.51 per cent on their property investment. For the same period in 1930, their net was $137,159,502 or 4.18 per cent. Operating revenues in the Eastern district for four months totaled $732,886,053, a decrease of 18.7 per cent below the corresponding period the year before, while operating expenses totaled $575,465,882, a decrease of 16.6 per cent.

CLASS I RAILROADS—UNITED STATES

	Month of April 1931	1930
Total operating revenues	$369,652,302	$451,233,257
Total operating expenses	290,617,542	348,279,197
Taxes	28,154,213	29,997,234
Net railway operating income	39,074,311	62,312,348
Operating ratio—per cent	78.62	77.18
Rate of return on property investment—per cent	2.22	3.61
	Four Months Ended April 30	
Total operating revenues	$1,448,260,061	$1,783,685,089
Total operating expenses	1,148,323,419	1,387,040,660
Taxes	110,163,867	118,144,072
Net railway operating income	146,136,775	238,805,095
Operating ratio—per cent	79.29	77.76
Rate of return on property investment—per cent	2.11	3.51

The net railway operating income for April was $24,255,714, compared with $38,014,398 in April, 1930.

Class I railroads in the Southern district for the four months had a net of $17,899,987, at the rate of 1.53 per cent. For the same period in 1930, their net amounted to $33,010,830, or 2.83 per cent. Operating revenues in the Southern district for the four months amounted to $191,442,512, a decrease of 19.4 per cent, while operating expenses totaled $154,265,735, a decrease of 16.6 per cent. For April the net was $5,359,814, compared with $7,993,296 in April, 1930.

Class I railroads in the Western district for the four months had a net of $43,739,930, at the rate of 1.84 per cent

For the same four months in 1930, they had a net of $68,634,763, or 2.92 per cent. Operating revenues in the Western district for four months amounted to $523,931,496, a decrease of 18.8 per cent, while operating expenses totaled $418,591,802, a decrease of 18.2 per cent. For April net railway income was $9,458,783, compared with $16,304,654 in April, 1930.

Hearings on New Trucking Tariffs For St. Louis

Hearings were held on June 5 before representatives of the Interstate Commerce Commission on the new tariffs which the Terminal Railroad Association of St. Louis has filed to provide a reduction in freight trucking rates in that city. The Commission has already approved the plan, reported in the *Railway Age* of June 6, page 1126, for a reduction in the number of off-track stations and for an exclusive trucking contract with the Columbia Terminals Company.

Under the new arrangements the only off-track stations recognized by the Terminal Railroad Association will be those of the Columbia Terminals Company, of which seven will be in St. Louis and two in East St. Louis. Other stations may be recognized by the Terminal Railroad Association in the future but they will be stations of the Columbia Terminals Company. The Terminal Railroad Association will pay the Columbia Terminals Company $2.60 per ton for hauling from on-track stations on one side of the Mississippi river to off-track stations on the other side; $2.04 for hauling from off-track stations on either side to on-track stations on the other side, and $1.95 between off-track and on-track stations in St. Louis. The reductions range from 10 to 37 cents a ton.

Bills Proposed in Massachusetts to Curb Outside Rail Control

Two bills designed to curb the acquisition by outside interests of control in New England railroads have been drafted by the Committee on Transportation of the Massachusetts legislature. At the same time the committee recommended the formation of an all-New England system through the consolidation of the New York, New Haven & Hartford, the Boston & Maine, the Maine Central and the Rutland, together with connecting leased lines. They would exclude the Boston & Albany, which is under lease to the New York Central, and the Central Vermont, which is controlled by the Canadian National, as well as other C.N.R. and C.P.R. lines in the territory.

Of the two bills drafted by the committee, one would penalize any outside holder of stock in a New England railroad whose holdings exceed ten per cent of the total common stock by refusing to the holders of such stock all voting privileges to which they ordinarily would be entitled. A penalty consisting of a $10,000 fine and forfeiture of charter and franchise of such railroad corporation is provided, and a fine of $1000 and imprisonment from six months to a year for any officer, employee or agent of such a corporation who knowingly permits the voting of stock in violation of the act is likewise set forth.

The second bill would compel within thirty days of the acquisition of a beneficial interest in a block of railroad stock of 1000 shares or more, the filing of notice in writing by those acquiring the stock with the Department of Public Utilities of the Commonwealth and the clerk of the railroad corporation involved of a statement of the amount of the stock purchased or owned and in whose name it stands.

Violation of this act would be punished by a fine of not more than $500 upon the corporation or association committing the violation, and a $500 fine and possibly one months' imprisonment upon the individual responsible for the evasion.

Southern Roads to Co-Operate With Others in Seeking Rate Advance

Traffic officers of the southern railroads at a meeting in Washington on June 9 voted to recommend to their chief executives that they co-operate with the eastern and western railroads in presenting to the Interstate Commerce Commission a petition for an increase in freight rates. The southern executives, who had referred the matter to the traffic officers, were to attend a general meeting with the eastern and western executives in New York on Thursday, May 11, at which it was hoped that final action would be taken, presumably in accordance with tentative plans discussed at a meeting of the eastern executives on June 5 for petitioning the commission for authority for a maximum general increase of 15 per cent, subject to exceptions as to certain commodities and shorter hauls particularly susceptible to competition from other agencies of transportation.

This recommendation was made at a meeting of the Southern Freight Association, after R. N. Collyer, chairman of the Trunk Line Association, had explained the progress made by the eastern roads after having received reports from their traffic and accounting committees. Some of the western executives had attended the New York meeting on June 5 and it was expected that they would join with the other districts so that the roads would act as a unit in presenting

On Elimination of Grade Crossings

In connection with, or growing out of, the steadily-increasing drain upon the railroads as a result of bus-truck competition, all the states soon or late will find it necessary to consider the wisdom and justice of a readjustment to which attention has seldom, if at all, been publicly directed. That is, a readjustment of the burden of eliminating existing grade crossings and of avoiding new grade crossings.

At present, the general rule is that this charge, whether for the elimination of an existing grade crossing or for underpass or overhead construction to prevent new grade crossings, is so distributed as to impose fifty per cent of the cost upon the railroads affected. That seemed a fair enough rule when it was adopted. That it is a fair enough rule at this time is open to grave question.

Figures made available show that the railroads of the country contribute from $25,000,000 to $30,000,000 annually to the cost of eliminating grade crossings. Yet, highways are constructed and improved with such rapidity throughout the county that, for the last four years, there has been an average net annual increase of 600 grade crossings for all the railroads of the United States.

Eventually, of course, all grade crossings must be eliminated. It goes without saying that in these days of high speed and fast-growing motor travel, both long and short haul, grade crossings are not to be tolerated as permanently-fixed menaces. But it is not the fault of the railroads that highways are being extended and hard-surfaced and converted into high-speed traffic lanes in every state in the Union. And it certainly is not the fault of the railroads that the highways are being used by passenger and freight carriers—buses and trucks—precisely as railroad rights-of-way are used by the railroads. As a matter of fact, the highways are so used to such an extent that the use by the railroads of highway-rail crossings constitutes a very small percentage of the total use.

If, then, the highways of the states are more and more becoming public rights-of-way for the use of passenger and freight carriers; if these carriers are more and more strongly competing with the railroads; if the railroads are more and more heavily losing traffic to these competitors; if the railroads are already in operation in areas which are being more and more closely traversed by highways which must cross, or otherwise intersect, the existing lines of railroads; and if the use of these crossing points by the railroads represents a small percentage of their total use by traffic of all sorts—and all these hypotheses are facts—is it just, is it morally right, that the states should continue to impose upon railroads the burden of paying 50 per cent of the cost of eliminating or avoiding grade crossings?—From the Norfolk (Va.), Ledger-Dispatch.

their plan to the commission in a petition which had been tentatively drafted by Clyde Brown, general solicitor of the New York Central. The southern roads, like the western roads, had been making their own studies of their revenue situation and of their traffic and might have decided to proceed independently, but agreed that a better course would be for the roads to act together.

Barge Line Asks to Extend Service

The Mississippi Valley Barge Line has applied to the Interstate Commerce Commission for a certificate authorizing the extension of its service between St. Louis, Mo., and Cairo, Ill. The company now operates on the Ohio and Mississippi between Cincinnati and New Orleans.

Correction

In the *Railway Age* of May 30, page 1085, the net ton miles per mile of road per day for the Norfolk & Western for the month of March, 1931, and the same month in 1930 were incorrectly given. These averages should be, respectively, 13,724 for the 1931 month and 17,234 for the 1930 month.

A. L. Sorensen Given P. & S. Division Assignment

A. L. Sorensen, manager of stores of the Erie, Hornell, N. Y., has been selected by the Chairman of the Purchases and Stores Division, American Railway Association, to direct the organization of committee work and personnel for the year.

Effective Date of Petroleum Rates Postponed

The Interstate Commerce Commission has postponed for 120 days from June 15 the effective date for the revision of rates on petroleum and its products in the Southwest, recently prescribed in a part of the general rate structure investigation under the Hoch-Smith resolution.

G. W. Rink Heads Plainfield (N. J.) Section, A. S. M. E.

George W. Rink, mechanical engineer of the Central Railroad of New Jersey, has been elected chairman of the Plainfield (N. J.) Section of the American Society of Mechanical Engineers. Mr. Rink was vice-chairman of this Section and also has been active in the work of the Railroad Division of the society.

Texas Governor Signs Highway Regulatory Bill

Governor Sterling of Texas has signed a bill passed by the legislature at a recent session enlarging powers of the railroad commission in the regulation of rates and operation of motor carriers. The new law provides that the railroad commission shall prescribe the minimum rates to be charged by contract motor truck operators not to be less than rates prescribed for common carrier truck lines for substantially the same service. All motor truck lines must have certificates of convenience and necessity from the railroad commission. In passing upon applications for such certificates, existing service must be taken into consideration. The new law authorizes the commission to require adequate insurance and to decide whether a particular highway is of such construction as to permit operation over it of proposed service. In addition the commission is empowered to approve or reject equipment proposed to be used.

Governor Sterling has not yet acted upon the bill fixing maximum dimensions and weights of motor trucks which was also passed at the recent session of the legislature.

C. N. S. & M. Securities

Following the hearing on the application of the government for an injunction to restrain the Chicago, North Shore & Milwaukee from issuing securities without approval by the Interstate Commerce Commission at Chicago on May 27, Federal Judge Charles E. Woodward took the petition of the government under advisement. The action will not affect securities already issued.

Shippers' Boards

Regional advisory board meetings scheduled for June include that of the Ohio Valley Shippers' Advisory Board at Indianapolis, Ind., on June 16, that of the Trans-Missouri-Kansas Shippers' Advisory Board at Wichita, Kan., on June 19, that of the Pacific Coast Transportation Advisory Board at San Francisco, Cal., on June 19, and that of the Central Western Shippers' Advisory Board at Ogden, Utah, on June 23.

Consolidated Ticket Offices Considered in Texas

The consolidation of railroad ticket offices in Texas, as was done during Federal control, is being considered by general managers of railroads in that state as a means of reducing the expense associated with transportation of passengers. Efforts have been made to reduce the number of trains operated, but certain situations, including the competition with motor coaches, have prevented any marked accomplishment in this direction.

Stevens Honors Wright

Stevens Institute of Technology at its commencement exercises on June 6 conferred the honorary degree of Doctor of Engineering upon Roy V. Wright, managing editor of the *Railway Age* and president of the American Society of Mechanical Engineers. The citation of Mr. Wright's accomplishments reads as follows:

"Roydon Vincent Wright.—Mechanical Engineer, whose practical experience in railway engineering has during twenty-seven years expressed itself through his work as an author, publisher and editor, whose sincerity and clarity of thought have given him a place of unusual significance among the interpreters of an age determined by mechanical achievement, who as President of the American Society of Mechanical Engineers now presides over the affairs of a great fraternity of engineers founded within our college walls."

Wage Statistics for March

The total compensation of the 1,319,315 employees of Class I railroads in March was $189,404,457, a decrease of 16.59 per cent as compared with March, 1930, according to the Interstate Commerce Commission's monthly compilation of railway wage statistics. The number of employees as of the middle of the month showed a decrease of 14.7 per cent as compared with March last year, although there was an increase of 2,821 as compared with February.

New Fast Freight Between Portland, Me., and New York

The "Maine Bullet" is the name of a new night freight train between Portland, Me., and New York City, about 345 miles, which is announced by the Boston & Maine and the New York, New Haven & Hartford to run through in 12½ hours, a speed which, says the announcement, will make it difficult for shippers to get their invoices to the consignee by mail before the freight arrives at his door. In connection with trains and motor trucks which will take freight to and from the Maine Bullet at junctions, this improvement of about 24 hours in the time of shipments to and from New York City will be enjoyed by Concord, N. H., New Bedford, Mass., and numerous other places not on the through line.

Low Fares Eastbound

Railroads operating from the central and western passenger association territories to points in the east have established for the months of June, July, August and September round trip fares equal to a fare and a half, a reduction of 25 per cent. In addition to these rates, which bear a return limit of 30 days, these railroads are also offering reduced fares, with a return limit of 60 days, at 90 per cent of two one-way fares. Both types of tickets are on sale on Tuesdays and Saturdays, and are good in all classes of cars. Last year for three months these railroads offered similar reduced rates, but the dates of sale were limited to Saturdays. The arrangement this year provides for twice the number of sale days over a longer period of time. Similar westbound reduced rates were noticed in the *Railway Age* of June 6, page 1126.

Equipment Installed

Class I railroads in the first four months of 1931 placed 5,330 new freight cars in service, the Car Service Division of the American Railway Association has announced. In the same period last year, 34,987 new freight cars were placed in service. Of the new cars, 2,356 were box cars, while there were 2,352 new coal cars, 172 flat cars, 442 refrigerator cars and 8 miscellaneous cars. The railroads on May 1 had 8,554 new freight cars on order, compared with 33,723 on the same day last year. The railroads also placed in service in the first four months 39

new locomotives, compared with 283 in the same period in 1930. New locomotives on order on May 1 this year totaled 81 compared with 362 on the same day last year. Freight cars or locomotives leased or otherwise acquired are not included in the above figures.

Railway Development Association

The twenty-third annual meeting of the American Railway Development Association will be held at the Hotel Benjamin Franklin, Philadelphia, Pa., on June 17, 18 and 19. Among the subjects included on the program are: "Marketing Studies in New York City"; "Mutual Interests of Railroads, Realtors, Chambers of Commerce and Regional Councils in Agricultural and Industrial Development"; "Agricultural Research and Its Utilization"; "Experiences in Marketing Frozen Georgia Peaches"; "Rail Rates, Trucks and Water Transportation, and Their Effect on Railway Industrial Locations"; "Relations Between Agricultural and Industrial Development"; "The Value of Advertising in Industrial Development Work on Railroads"; "Market Studies"; and the "Relation of Domestic and Foreign Commerce to American Railroad Development."

Trainmen Pledge Assistance

The Brotherhood of Railroad Trainmen at its triennial convention which closed at Houston, Tex., on June 5, adopted a resolution pledging assistance "in every consistent way to secure such consideration as will result in a just and reasonable return to the railroad industry." Inroads of the motor coach, the truck, the waterway and the pipe line, the resolution stated, "have been permitted to very seriously and unfairly compromise the efforts of the railroads to carry out the functions with which they are charged by law."

The brotherhood declined an invitation to join the American Federation of Labor. A committee report adopted by the convention stated that "under existing conditions it appears that affiliation with the American Federation of Labor can only be effected by the relinquishment, on our part, of jurisdiction over classes of service which we have represented for many years, and unless and until this condition is eliminated, we do not recommend an affiliation."

Hudson River Bridge Application Again Denied

Following reconsideration by army engineers, the War Department has again denied the application of the North River Bridge Company for permission to build a bridge across the Hudson river from Fifty-seventh street, New York City, to New Jersey. The bridge company had proposed a structure with a minimum clearance, at the center, of 179.8 ft., and with a maximum pierhead clearance of 154.3 ft., whereas Army and War Department engineers held that navigation and national defence would be hampered by any river crossing having clearances of less than 200 ft. at the center and 185 ft. on either side.

The bridge, as planned, would have carried both rail and highway traffic; and it had been generally understood that it would be used by the Baltimore & Ohio to gain direct entrance to New York City.

Long Island Rail-Motor Coach Excursions

Arrangements have been completed between the Long Island and the Bee Line, Inc., for the operation of combined rail and bus excursions to Jones Beach State Park on Long Island, N. Y., from June 16 to August 28, inclusive.

The new rail-bus excursion service will be available to residents of New York City, Brooklyn and Jamaica on Tuesday, Wednesday, Thursday and Friday of each week. On these days, during the period mentioned, trains of the Long Island will take excursionists from Pennsylvania station, Manhattan, Flatbush Avenue terminal, Brooklyn, Nostrand Avenue, Brooklyn, East New York and Jamaica, to Wantagh, on the Montauk division. At this point transfer will be made to buses furnished by the Bee Line, which will run direct to the ocean front at Jones Beach State Park.

The round trip fare from Manhattan, the Brooklyn and East New York Stations will be $1.75, and from Jamaica $1.25. For children 5 years of age and under 12, the charge from New York, Brooklyn and East New York will be $1.00, and 75 cents from Jamaica.

Government Scrutinizes C. N. R. Finances

What is interpreted as a warning to the Canadian National that a closer check will be kept on the financing of that enterprise by the government was given in the House of Commons at Ottawa last week in the budget speech of Premier R. B. Bennett:

"The Canadian National Railways Act," said the Prime Minister, "provides that the governor in council takes the position of shareholders under the Railway Act, and when I point out the sums that have been expended and the obligations that have been created during the last eight years, I do so because it has been done at the initiation of the government which is now the official opposition. I think there is a failure on the part of the Canadian people to understand and appreciate the extent and character of the obligations which have thus been placed upon them. There you have $86,000,000 of a deficit in interest earning power in the last eight years, in addition to which the people of this country paid interest on $604,000,000 advance for the running of the enterprise. Not one single capital request made by the management of the Canadian National Railways during the last eight years was refused by the late government—not one. Is that so in any privately owned road? Go through the requisitions made on the Canadian Pacific Railway or on the Union Pacific, the Southern Pacific or the Santa Fe, and you will not find that state of affairs existing. The best friend any business enterprise has is that shareholder who carefully scrutinizes the expenditures made by the directors during the year."

Express Companies Oppose Bigger Parcel Post Packages

Proposals of the Postmaster General to increase the size and weight of parcel post packages, for which he has asked the consent of the Interstate Commerce Commission, were opposed by representatives of the Railway Express Agency, Inc., and the Southeastern Express Company at a hearing before Examiner F. E. Mullen of the commission in Washington on June 9. The Postmaster General had asked the commission to advance its consideration of this part of its case, while hearings on his proposal for a revision of parcel post rates have been postponed until Fall. C. A. Frey, traffic manager of the Railway Express Agency, testified that the proposal to admit larger packages to the mails would tend to bring the postoffice into more direct competition with the express service, as the average weight of express packages is about 68 pounds, whereas most parcel post packages have been much smaller, and that this would cause a revenue loss to the express company which would be "substantial, and might well jeopardize the express service." Counsel for the Southeastern company concurred in this testimony.

Mr. Frey said that the present size and weight limits are higher than reasonable parcel post service by the government requires and are in a large measure responsible for the increasing deficits of the postal service, and that the effect of the proposed increase would be to divert still more business from the express in an effort to make up losses incurred in the handling of other parcel post traffic already diverted. The express companies, he said, feel that the competition of the government in the package transportation business is unfair and that it should not be further extended by the granting of the application. He pointed out that according to Postoffice Department calculations the expense of handling parcel post is 1.92408 cents per package in excess of the revenue and that a surcharge of 2 cents per package would wipe out the deficit and not work undue hardship on any shipper, while placing the burden of the deficit where it belongs and not on the taxpayers.

Protective Section at Chicago June 23-25

The Protective Section of the American Railway Association will hold its eleventh annual meeting at the Stevens hotel, Chicago, on Tuesday, Wednesday and Thursday, June 23, 24 and 25. The first session will open on Tuesday morning at 10 o'clock, daylight saving time, with an address by W. G. Slaughter (S. A. L.) chairman of the section. Other addresses on Tuesday forenoon will be those of George E. Q. Johnson, United States District Attorney, Chicago; H. L. Denton (B. & O.) reporting for the committee on law enforcement; A. L. Green of the freight claim division and J. Edgar

Hoover, director of the Bureau of Investigation of the United States Department of Justice.

Tuesday Afternoon

The speakers scheduled for Tuesday afternoon are J. B. Shields (C. B. & Q.); D. O'Connell (S. P.); E. P. McBride (Railway Express Agency); Bruce Stout (C. N. J.); and Mrs. Harrison Eustis, of Vevey, Switzerland, who will speak on police dogs.

Wednesday Morning

Addresses by C. W. Galloway (Vice-President B. & O.); C. L. Jellinghaus (N. Y. C.); Colonel Cortland Starnes, Commissioner, Royal Canadian Mounted Police; Hon. John A. Swanson, State Attorney, Cook County, Chicago.

Wednesday Afternoon

T. E. Pratt, (C. B. & Q.) Committee report on Sectional Police Committee; R. S. Mitchell, (M. P.) Committee report on co-operation with Freight Claim Division; W. W. Morrison (A. C. L.); L. C. Schilder, U. S. Department of Justice; K. P. Aldrich, Post Office Department, Chicago; D. G. Phillips, (Wabash).

Thursday Morning

Major F. A. Thiessen (D. & H.); G. W. Buzby (Penn.); D. M. Lay, (K. C. S.); W. J. Love, (C. C. C. & St. L.)

Jurisdiction Over International Freight Rates

A shipper sued the Southern Pacific in the superior court of the city and county of San Francisco, to recover damages alleged to have been caused by the exaction of freight charges which had been found by the Interstate Commerce Commission to be excessive. 102 I. C. C. 245. The Commission had found the rate charged on cowpeas, from Navojou, Sonora, Mexico, to San Francisco, unreasonable, and awarded reparation. A jury being waived, the superior court made findings of fact, stated its conclusions of law and dismissed the case on the ground that the Commission's order was void for lack of jurisdiction. The district court of appeal affirmed, the state supreme court declined to hear the case, and the United States Supreme Court granted a writ of certiorari.

The Supreme Court holds that the Commission had jurisdiction to determine the reasonableness of the joint through international rate, reversing the state court.

The court said, in part: "'But no action,' for damages alleged to have been caused by the exaction of excessive rates for interstate transportation can be maintained in any court, state or federal, in the absence of a prior finding by the Commission that the rate charged was unreasonable. The reasons upon which this rule rests have been fully stated in our decisions.

"There is no essential difference in this respect between a claim arising out of interstate transportation and the one under consideration. The Act applies to the interstate rate, and an excessive charge for the transportation covered by it is a direct and immediate violation. While the Act does not govern the joint through international rate, the demand for reparation is grounded upon the claim that the maintenance of that rate participated in by the American carrier and its violation of the Act, in failing to maintain a just and reasonable rate for the transportation from the boundary to destination, operated to compel payment of the charges based on the excessive joint rate. Lewis-Limas-Jones Co. v. Southern Pacific. Decided May 25, 1931. Opinion by Mr. Justice Butler.

The "Omaha" Celebrates Its Fiftieth Anniversary

The Chicago, St. Paul, Minneapolis & Omaha, a part of the Chicago & North Western System, celebrated its fiftieth anniversary at Hudson, Wis., on June 6 with a historical parade, sports, aerial maneuvers, and a re-enactment of the original meeting of the board of directors. The celebration was held in connection with the anuual meeting of the Omaha Veterans' Association which was attended by about 500 retired employees.

The characters of Henry H. Porter, first president of the road, and 11 other directors were taken in the directors' meeting by present employees. That original meeting, in 1881, ordered three locomotives at $8,450 each.

One of the three original locomotives was on display at Hudson along with a baggage car, a combination car, a passenger coach and a business car of that period.

Later in the day the present board of directors met and re-enacted the adoption of a resolution providing for the purchase of three passenger locomotives at a cost of $107,500 each. These locomotives were recently placed in service. A North Western Limited was on display beside the old train.

Commission Merchants Oppose Rate Increase

Determined opposition to any increase of railroad freight rates was declared by the National League of Commission Merchants in a statement made public in Washington on June 6, asserting that fresh fruits and vegetables, now a major item on the national menu, are now paying an unreasonable freight rate. The statement expresses the opinion that present charges should be reduced to encourage greater consumption of these commodities, in the belief that this would increase the tonnage handled by the carriers to a degree that would equalize or exceed the total revenues received under the present rates.

Taking figures furnished by the carriers to the Interstate Commerce Commission, and other data from the Department of Agriculture, the statement shows 15 classifications of fruits and vegetables which, in 1930, provided the railroads with 973,605 carloads of revenue-producing freight. For transporting these cars, it says, the carriers collected $268,780,105. The "farm value" of these—the price paid to the producers and growers,—was $489,518,129. On the basis of these figures, according to the League's study, the railroads collected for freight 54.91 per cent of the farm value. On the basis of the "destination value" of the commodity, the railroads collected in freight during 1930, 32.81 per cent of the wholesale value of these commodities. In several instances freight charges are said

Directors of the Omaha Re-enact Original Meeting at Hudson, Wis.

In the Group, Left to Right, are: C. W. Nash; W. L. Mansfield, impersonating Henry H. Porter, first president of the Omaha; Fred W. Sargent, present president; R. N. Van Doren, and Arthur W. Pierce, a director of the North Western.

to have been much more than the farm value of the commodity. On grapes, for example, it was stated that the freight bill was 185.81 per cent of the farm value, for tomatoes it was 93.83 per cent, for cantaloupes 82.39 per cent, and watermelons 137.38 per cent.

Another arrangement of the statistics is calculated to show that fruits and vegetables, compared with other freight traffic, pay disproportionate shares of the railroads' revenues. The figures show that whereas fruits and vegetables made up 1.28 per cent of the total net tonnage in 1930, that traffic paid 7.11 per cent of the total freight revenue.

C. N. R. Assailed in Parliament

A warm attack upon the Canadian National Railways was made in the House of Commons at Ottawa last week by John T. Hackett, a Quebec Conservative member, who urged private acquisition of this system although he made no suggestion as to how this could be achieved. He said the only alternative was public acquisition of the Canadian Pacific, thus making a public monopoly in Canada of railway transportation. Mr. Hackett said in part:—"I am opposed to the public ownership of these lines. I am opposed to it because in my opinion it is not the function of government to engage in competitive commerce. It is the function of government to encourage commerce; it is the function of government to direct and develop commerce and at times, if it tends to be unruly or predatory, to restrict commerce. But I am opposed—"

MILTON N. CAMPBELL (a Saskatchewan Progressive): "I wish to remind the hon. member that it was the failure of private ownership that left these roads at our doorstep."

MR. HACKETT: "I am grateful to the hon. member for the suggestion, because it affords me an opportunity to tell him that private ownership, of which he complains, has done more for Canada's credit and for the people of Canada than any system, of which this one under discussion may be the prototype, can ever do for the country. And if the hon. gentleman—I am sorry he has found it necessary to leave the chamber—will take the annual report of the Canadian Pacific Railway for last year, he will find that this road, which I daresay he would style as predatory, after paying 10 per cent dividends and paying all its fixed charges, paid out but $2,000,000 more than the interest money which the Canadian National owes on its funded debt to the public of Canada, overlooking entirely the $604,000,000, of which it paid nothing, and the other thousand million which it did not take into consideration at all.

"The Canadian Pacific Railway is an institution in which the people of this country and of other countries have invested large sums of money. It is a system of transportation which is known all over the world, not only on this continent but on the seven seas. Parliament has so conducted itself towards the administration of the Canadian National that it has placed a price on the head of the Canadian Pacific Railway; it has placed a bonus on the bankruptcy of that company and the day will come and come rapidly, unless something is done to curtail the rivalry between these two roads—parliament can curtail it because it is parliament which supplies the funds—when we will see the Canadian Pacific beaten to its knees. That company already has cut its dividends and the wages paid to its workers; its officers and men are now working three days a month without remuneration. If it passes its dividend entirely and becomes bankrupt it will then behoove this country to take it over and the government will then have a monopoly of transportation."

Competitors Protest C. G. W.-Soo Line Differential

Representatives of the Chicago & North Western, the Chicago, Burlington & Quincy and the Chicago, Milwaukee, St. Paul & Pacific appeared at a hearing of the Interstate Commerce Commission at Chicago on June 3 to protest the granting of an application of the Chicago Great Western and the Minneapolis, St. Paul & Sault Ste. Marie for permission to maintain a differential in passenger fares between Chicago and St. Paul-Minneapolis, Minn. The C.G.W. and the Soo Line have asked to be allowed to place in effect a first class round trip fare of $22 between Chicago and the Twin Cities, and $18 between Chicago and Rochester, Minn., with a $15 coach fare on both routes.

Oscar Townsend, vice-president in charge of traffic of the C.G.W. stated that his railroad can only compete with the other three lines in this service by a differential in its favor, or by establishing the same fast, frequent service that they maintain. He said that the latter alternative would not be practicable because the expenditure necessary to establish such a service would constitute an economic waste. He also expressed willingness to limit the differential to round trip fares.

The round trip coach fare of $18, which had been in effect from August, 1928, to May 15, 1931, had produced results which were encouraging. He felt that most of this increase in traffic consisted of passengers who would not have traveled by rail had the low rate not been in effect.

An exhibit introduced in evidence showed that in November, 1928, several months after the reduced round trip rate was placed in effect, the C.G.W. carried 3.28 per cent of the 29,126 through passengers carried by the six roads between Chicago and the Twin Cities. Of the passengers handled by the C.G.W., 63.8 per cent travelled on the $18 fare. The exhibit also showed that the railroads carried the following numbers of through passengers in that service: Chicago Great Western, 955; Chicago & North Western, 6,666; Milwaukee, 12,279; Burlington, 7,585; Rock Island, 30; Soo Line, 1,611.

The protesting roads stated that if the reduced rates, which are now under suspension, are permitted to become effective, they will be forced to publish similar tariffs. The C.G.W. has indicated its intention of further reducing its rates, to maintain a differential. The protesting roads' representatives asserted that none of the railroads involved can afford to undergo a rate war at this time.

J. N. Davis, commerce counsel of the Milwaukee, asserted that the roads are now engaged in a study of a pooling arrangement to reduce the operating expense of their Chicago-Twin Cities service. Mr. Townsend declared that his road had found it an impossibility to reach an agreement with the other roads for a pooling arrangement.

Grain Movements to Exceed Last Year's

The movement of grain from Texas, Oklahoma, Kansas, Nebraska, Colorado and Missouri during the season which will start about the middle of June, will exceed that of last year, according to government crop forecasts. The forecast of winter wheat production indicates a total crop of 368,071,000 bu., or an increase of 12½ per cent. A large portion of the wheat now in storage is owned by the Government Stabilization Corporation and much of it is being moved out of the way of the new crop, so that the storage now occupied will be released prior to the movement of the new crop. At present there is no certainty as to the size of the export movement, and conditions affecting the new crop may result in greater export sales. There is expected to be a considerable movement of new wheat to gulf ports.

The present large surplus of box cars indicates that almost any demand can be met. The southwestern railroads will be called upon to supply cars for what is almost certain to be the largest winter wheat crop on record in that territory. The flow of new wheat to ports for export may or may not be met with commensurate export demand, lacking which an accumulation of grain in cars may easily occur. The absorption of new wheat by local mills in any volume may be delayed for some time after the beginning of harvest, if conditions justify buyers in expecting lower prices after the new wheat begins to crowd the markets in mid-season volume. This absorption of new wheat by millers throughout the country, whether the movement be early or late, will result in a very considerable scattering of the car supply of originating railroads.

The St. Louis-San Francisco is completing the storage of 4,000 grain cars to handle the movement in its territory, and has materially increased car forces at Oklahoma and Kansas points to insure sufficient cars for shippers' demands. The agricultural department of this railroad, which estimates the production at 175,000,000 bu. in Kansas, 50,000,000 bu. in Oklahoma, 40,000,000 bu. in Texas, and 23,000,000 bu. in Missouri, expects to load approximately 18,500 cars of wheat during the season.

The Missouri-Kansas-Texas has been making preparations for the handling of the crop for some weeks. The car shops at Denison were put on a full time basis

(Continued on page 1172)

Revenues and Expenses of Railways

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1931

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equip. ment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1930
Akron, Canton & Youngstown	April	171	$175,538	$69	$184,400	$20,027	$17,782	$13,177	$53,514	$15,266	$119,766	64.9	64,634	51,143	35,961	50,851
	4 mos.	171	653,663	318	686,561	78,258	67,961	51,396	213,743	57,782	468,667	68.3	217,894	168,509	110,476	181,739
Atchison, Topeka & Santa Fe	April	9,469	9,205,494	1,696,220	12,130,628	2,021,035	2,881,769	411,901	4,135,487	450,210	9,869,999	81.4	2,260,629	1,259,532	1,296,416	1,221,996
	4 mos.	9,649	36,009,744	7,448,365	48,254,490	6,886,698	11,496,561	1,631,792	16,365,287	1,755,336	38,112,344	79.0	10,142,146	6,012,056	5,961,716	6,756,410
Gulf, Colorado & Santa Fe	April	1,976	1,180,086	92,454	1,385,834	327,902	357,455	60,605	539,025	98,601	1,381,005	99.7	4,829	—93,154	—197,611	—138,507
	4 mos.	1,976	4,607,434	357,394	5,351,805	1,092,591	1,382,516	232,174	2,130,560	326,811	5,159,120	96.4	192,685	—197,839	—627,511	—638,441
Panhandle & Santa Fe	April	1,726	708,946	62,832	844,288	289,999	217,027	22,207	304,575	35,841	867,599	102.8	—23,311	—80,256	—180,929	—186,694
	4 mos.	1,724	2,815,911	261,674	3,346,035	775,637	859,508	83,979	1,200,063	155,376	3,055,418	91.3	290,617	62,464	—343,973	—336,318
Atlanta & West Point	April	93	118,467	26,697	170,033	19,968	29,615	10,619	65,812	12,654	142,430	83.8	27,603	15,636	6,404	11,825
	4 mos.	93	444,672	120,652	662,279	83,150	126,342	43,283	273,469	47,407	587,862	88.8	74,417	27,688	—6,928	57,046
Western of Alabama	April	133	139,001	27,845	186,670	26,968	40,274	11,411	63,074	12,818	157,991	84.6	28,679	14,719	23,433	45,142
	4 mos.	133	505,088	127,836	711,874	107,267	158,112	45,893	257,732	48,861	631,632	88.7	80,242	30,049	58,742	142,602
Atlanta, Birmingham & Coast	April	639	270,484	10,790	314,979	71,143	76,265	27,484	140,254	20,098	344,812	109.5	—29,833	—46,049	—68,884	—66,326
	4 mos.	639	1,044,971	41,893	1,218,802	296,954	294,379	108,836	574,423	77,751	1,390,931	114.1	—172,129	—236,147	—324,289	—245,676
Atlantic Coast Line	April	5,162	4,566,260	885,135	5,991,836	722,514	942,753	148,742	1,922,460	181,500	3,977,941	66.4	2,013,895	1,463,580	1,150,658	1,019,144
	4 mos.	5,162	17,735,609	4,428,276	24,443,531	2,926,475	3,934,136	629,254	7,813,803	710,009	16,297,699	66.7	8,145,832	5,894,592	4,885,614	5,319,583
Charleston & Western Carolina	April	342	255,209	4,802	268,763	39,405	28,427	7,680	86,954	6,740	168,796	62.8	99,967	79,966	73,024	40,987
	4 mos.	342	856,842	18,976	908,021	145,216	126,760	30,215	338,525	25,528	665,812	73.3	242,209	162,186	143,616	69,082
Baltimore & Ohio	April	5,653	11,500,446	1,343,299	13,876,727	1,283,315	2,954,473	496,075	5,216,882	655,686	10,774,520	77.6	3,102,207	2,246,210	1,954,587	3,132,732
	4 mos.	5,653	45,970,919	4,979,324	54,684,906	5,096,160	12,557,787	1,986,749	21,234,274	2,698,188	44,153,390	80.7	10,531,516	7,206,041	6,160,978	9,937,950
Baltimore & Ohio Chic. Term	April	85	.....	.....	267,494	35,385	31,805	2,430	133,935	17,747	227,202	84.9	40,292	42,054	151,182	113,356
	4 mos.	85	.....	.....	1,037,655	137,600	130,141	9,357	564,940	76,116	941,888	90.8	95,767	—80,029	320,055	330,037
Staten Island Rapid Transit	April	23	56,765	112,021	176,863	9,413	12,836	1,923	89,574	15,964	129,710	73.3	47,153	29,653	23,169	34,026
	4 mos.	23	222,801	428,254	682,388	40,502	53,687	8,078	371,625	63,400	537,292	78.7	145,096	74,596	22,708	70,755
Bangor & Aroostook	April	619	728,250	33,793	789,368	117,238	118,635	5,756	164,430	30,601	438,813	55.6	350,555	279,671	270,038	287,173
	4 mos.	619	2,989,491	213,010	3,309,202	498,332	490,077	22,248	718,558	113,148	1,850,243	55.9	1,458,959	1,172,932	1,112,377	1,347,113
Belt Ry. Co. of Chicago	April	53	.....	.....	452,409	33,369	46,265	3,586	210,955	10,984	305,159	67.5	147,250	71,827	46,912	151,875
	4 mos.	53	.....	.....	1,815,505	107,465	166,135	14,372	883,169	39,237	1,210,378	66.7	605,127	356,343	495,760	601,997
Bessemer & Lake Erie	April	227	599,935	2,447	614,778	184,023	286,811	14,388	218,741	36,339	741,526	120.6	—126,748	—152,913	—155,020	140,002
	4 mos.	227	1,883,692	11,875	1,946,980	371,037	1,159,905	58,853	798,143	147,596	2,538,540	130.3	—591,560	—703,586	—702,175	—33,374
Bingham & Garfield	April		Reclassified—Class II Company—Will not file monthly report.													
	4 mos.		Reclassified—Class II Company—Will not file monthly report.													
Boston & Maine	April	2,089	3,527,284	915,919	5,156,393	805,488	735,044	82,933	1,854,107	232,273	3,727,592	72.3	1,428,801	1,145,095	906,607	927,155
	4 mos.	2,089	13,315,720	4,009,808	20,087,647	3,021,271	2,806,900	329,246	7,640,628	915,273	14,792,021	73.6	5,295,626	4,291,541	3,354,140	3,724,223
Brooklyn Eastern Dist. Term	April	11	104,710	.....	105,798	11,810	11,155	2,239	33,219	5,804	64,227	60.7	41,571	35,083	35,083	34,628
	4 mos.	11	409,530	.....	415,077	41,012	41,292	3,315	129,980	23,341	238,940	57.6	176,137	148,961	148,961	157,142
Buffalo & Susquehanna	April	253	126,742	397	143,954	24,019	33,473	2,178	40,621	6,897	107,188	74.5	36,766	34,666	41,852	42,699
	4 mos.	253	472,645	1,889	528,158	102,775	146,292	8,702	162,984	28,477	449,230	85.1	78,928	70,528	106,035	113,293
Buffalo, Rochester & Pittsburgh	April	601	949,806	35,392	1,026,334	113,275	290,663	25,041	421,200	38,803	890,804	86.8	135,530	115,529	111,597	153,611
	4 mos.	601	3,879,732	155,491	4,179,916	492,060	1,179,402	119,298	1,773,495	163,513	3,736,161	89.4	443,755	363,337	401,746	679,425
Burlington-Rock Island	April	367	91,756	2,283	99,423	38,425	16,225	6,982	44,696	10,296	115,730	116.4	—16,307	—24,310	—49,333	—148,525
	4 mos.	367	394,695	9,892	430,386	113,268	70,243	26,217	213,073	42,619	463,283	107.6	—32,897	—64,742	—170,989	—490,596
Canadian Pacific Lines in Maine	April	233	181,365	19,411	215,415	31,986	34,590	8,498	85,316	4,002	164,392	76.3	51,023	39,023	18,745	10,782
	4 mos.	233	857,027	92,712	1,002,618	97,397	222,989	31,775	420,605	17,738	790,504	78.8	212,114	164,114	77,534	128,350
Canadian Pacific Lines in Vermont	April	85	64,601	18,706	105,932	20,730	25,707	2,282	76,510	2,492	127,721	120.5	—21,789	—25,809	—53,848	—15,053
	4 mos.	85	285,468	85,228	453,119	56,342	119,581	8,560	314,851	11,762	511,028	112.7	—57,909	—73,989	—182,207	—124,494
Central of Georgia	April	1,944	1,242,853	174,413	1,584,513	174,597	299,850	69,867	649,094	69,344	1,267,693	80.0	316,820	197,983	197,626	314,502
	4 mos.	1,944	4,794,457	770,983	6,298,352	492,763	1,056,270	268,323	2,623,054	314,184	4,807,048	76.3	1,491,304	1,022,872	981,999	1,293,387
Central New Jersey	April	692	2,810,828	552,876	3,601,272	304,418	580,885	61,415	1,381,085	115,237	2,465,353	68.5	1,135,919	730,893	629,599	419,383
	4 mos.	692	10,648,812	2,113,149	13,620,053	1,194,181	2,806,223	224,291	5,669,402	469,883	10,454,219	76.8	3,165,834	2,151,458	1,766,841	1,974,930
Central Vermont	April	456	471,769	68,238	596,955	94,705	101,928	16,956	248,060	25,070	488,856	81.9	108,099	98,726	113,056	101,214
	4 mos.	456	1,773,008	296,893	2,272,539	295,537	440,660	68,839	1,006,560	100,100	1,919,441	84.5	353,098	295,691	350,715	398,432
Chesapeake & Ohio	April	3,119	8,371,786	388,969	9,322,857	1,235,336	1,985,156	170,670	2,450,935	345,002	6,208,522	66.6	3,114,335	2,247,257	2,211,276	2,547,482
	4 mos.	3,119	34,805,152	1,441,392	38,121,298	5,562,668	7,765,328	651,125	10,279,052	1,375,063	25,728,797	67.5	12,392,501	8,919,835	9,078,704	11,196,294
Chicago & Alton	April	1,028	1,179,852	271,741	1,630,662	163,877	220,998	73,421	651,861	57,877	1,183,255	72.6	447,407	329,833	160,566	12,210
	4 mos.	1,028	4,634,398	1,164,774	6,469,764	632,328	1,408,498	284,797	2,680,875	254,663	5,337,455	82.5	1,132,309	671,313	38,181	237,525
Chicago & Eastern Illinois	April	938	1,035,285	154,481	1,313,031	171,478	249,574	69,427	596,574	65,663	1,166,472	88.8	146,559	31,252	—106,187	—52,470
	4 mos.	938	4,215,070	656,251	5,348,673	703,667	1,183,052	287,598	2,441,564	279,069	4,952,960	92.6	395,713	—75,431	—616,934	—238,206
Chicago & Illinois Midland	April	131	217,812	2,691	227,989	24,254	60,329	19,712	68,479	19,480	191,586	84.0	36,403	27,446	20,671	46,512
	4 mos.	131	894,844	12,523	934,411	100,519	229,797	80,286	294,498	80,006	784,978	84.0	149,433	124,105	88,514	135,902

Revenues and Expenses of Railways

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1931—CONTINUED

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equip. ment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1930.
Chicago & North Western	April	8,458	$6,587,849	$1,215,531	$8,809,875	$1,716,388	31,848,419	$200,315	$3,582,173	$375,620	$7,762,606	88.1	$1,047,269	$321,744	$104,071	$729,099
	4 mos.	8,458	25,191,410	4,845,228	33,854,225	4,518,891	6,870,439	750,195	14,442,053	1,521,971	28,296,763	83.6	5,557,462	2,654,598	1,825,771	2,987,328
Chicago, Burlington & Quincy	April	9,319	7,453,932	851,812	9,442,326	1,468,618	1,438,276	233,789	3,213,417	356,434	6,782,531	71.8	2,659,795	1,800,240	1,531,020	2,312,717
	4 mos.	9,321	30,825,147	3,611,756	38,508,965	4,126,414	6,225,808	965,880	13,333,994	1,441,749	26,368,754	68.5	12,140,211	8,594,742	7,504,819	9,836,855
Chicago Great Western	April	1,495	1,438,495	106,717	1,674,080	245,572	186,308	87,080	617,098	59,973	1,200,077	71.7	474,003	390,353	197,597	174,358
	4 mos.	1,495	5,562,317	447,715	6,475,514	657,599	753,303	329,140	2,516,000	237,318	4,511,328	69.7	1,964,186	1,621,381	869,404	701,848
Chicago, Indianapolis & Louisville	April	647	778,523	104,815	984,537	92,223	207,631	34,149	397,544	33,435	773,569	78.6	210,968	141,465	27,741	79,244
	4 mos.	647	3,121,564	400,948	3,914,238	361,303	844,508	139,224	1,601,921	140,668	3,124,228	79.8	790,010	540,157	98,399	332,501
Chicago, Mil., St. Paul & Pacific	April	11,323	7,691,888	750,374	9,474,705	1,806,487	2,128,124	276,098	3,659,584	339,973	8,233,760	86.9	1,240,945	475,241	124,954	881,472
	4 mos.	11,322	30,430,038	2,987,120	37,222,578	4,807,996	8,210,427	1,137,599	15,135,121	1,384,395	30,703,633	82.5	6,518,945	3,381,985	1,830,866	3,640,302
Chicago River & Indiana	April	20	.....	.....	480,997	45,000	40,000	2,132	164,714	19,780	271,626	56.5	209,371	159,349	234,177	240,140
	4 mos.	20	.....	.....	1,879,420	180,000	160,000	7,612	644,116	72,811	1,064,539	56.6	814,881	656,666	948,375	983,175
Chicago, Rock Island & Pacific	April	7,593	6,285,263	879,970	7,992,355	1,017,169	1,410,423	245,932	3,096,335	342,755	6,205,022	77.6	1,787,333	1,175,501	779,504	1,555,586
	4 mos.	7,593	24,763,735	3,680,081	31,599,184	3,373,845	5,850,682	942,471	12,546,312	1,373,709	24,477,358	77.5	7,121,826	4,933,776	3,373,429	4,438,743
Chicago, Rock Island & Gulf	April	625	348,054	44,333	434,812	62,017	41,031	20,672	148,811	22,199	299,271	68.8	135,541	112,710	81,876	91,257
	4 mos.	625	1,510,731	189,354	1,849,213	244,256	161,425	81,091	616,596	87,228	1,202,630	65.0	646,583	546,496	436,601	391,634
Chicago, St. Paul, Minn. & Omaha	April	1,736	1,229,401	191,073	1,566,687	284,900	305,142	40,380	694,774	84,670	1,418,470	90.5	148,217	68,663	—781	92,992
	4 mos.	1,736	4,877,259	768,182	6,182,224	916,873	1,225,729	157,443	2,929,301	334,107	5,604,440	90.7	577,784	201,465	—71,869	631,134
Clinchfield	April	309	461,020	6,803	476,882	47,091	115,485	19,328	104,839	17,858	304,426	63.8	172,456	107,452	130,899	161,465
	4 mos.	309	1,892,846	29,497	1,957,372	226,915	479,490	79,671	427,926	70,818	1,284,282	65.6	673,090	413,079	608,972	786,490
Colorado & Southern	April	1,037	494,251	45,788	603,161	118,391	134,460	14,270	239,204	40,589	547,396	90.8	55,765	—12,014	—33,471	43,956
	4 mos.	1,037	2,204,185	192,624	2,653,421	337,653	600,765	61,467	1,017,915	161,972	2,185,184	82.4	468,237	198,660	124,411	449,451
Ft. Worth & Denver City	April	696	412,375	63,546	521,815	75,397	94,457	19,837	175,519	38,306	406,421	77.9	115,394	82,928	69,473	119,147
	4 mos.	696	1,770,149	274,704	2,219,673	255,959	396,902	77,233	766,612	150,021	1,656,924	74.6	562,749	419,298	363,412	522,545
Wichita Valley	April	270	38,981	1,181	43,513	17,284	4,671	1	23,857	1,581	47,362	108.8	—3,849	—10,528	—20,893	—11,409
	4 mos.	270	166,125	5,802	183,546	51,117	15,892	31	93,168	6,917	166,850	90.9	16,696	—11,497	—53,664	—38,491
Columbus & Greenville	April	167	82,121	6,450	94,044	14,043	11,896	4,152	35,245	11,374	76,710	81.6	17,334	14,334	15,208	12,937
	4 mos.	167	310,354	25,595	356,438	54,824	52,207	15,791	145,841	44,827	313,476	88.0	42,962	34,800	37,894	78,420
Conemaugh & Black Lick	April	20	32,210	.....	67,899	11,241	22,086	566	48,197	3,479	85,569	126.0	—17,670	—18,570	—15,131	9,980
	4 mos.	20	122,114	.....	277,076	41,464	79,522	2,263	198,368	13,999	335,616	121.1	—58,540	—62,140	—49,878	42,105
Delaware & Hudson	April	882	2,370,946	144,064	2,696,104	394,011	677,859	51,099	1,007,287	150,916	2,286,967	84.8	409,137	331,671	341,341	295,682
	4 mos.	882	9,209,593	666,994	10,535,548	1,747,969	2,715,761	220,522	4,104,555	618,183	9,431,031	89.5	1,104,517	725,880	797,714	1,400,223
Delaware, Lackawanna & Western	April	998	4,021,286	704,724	5,433,158	449,378	1,046,881	140,530	2,176,842	177,525	4,030,177	74.2	1,402,981	910,860	882,451	918,923
	4 mos.	998	14,779,066	2,878,262	20,304,966	1,797,291	3,838,976	538,141	8,839,035	707,296	15,881,789	78.2	4,423,177	2,625,244	2,587,933	2,942,704
Denver & Rio Grande Western	April	2,549	1,511,082	114,931	1,768,928	202,310	426,355	54,642	578,027	86,891	1,361,718	77.0	407,210	241,329	249,389	349,874
	4 mos.	2,559	6,538,444	486,090	7,534,789	878,672	1,771,214	218,017	2,414,798	349,872	5,690,919	75.5	1,843,870	1,182,740	1,290,327	1,674,069
Denver & Salt Lake	April	232	101,092	8,728	122,615	29,957	35,690	1,987	27,364	11,618	106,616	87.0	15,999	—1	3,796	—32,276
	4 mos.	232	517,785	36,287	606,667	112,553	151,579	7,618	124,537	43,522	439,809	72.5	166,858	102,846	137,266	298,611
Detroit & Mackinac	April	242	88,103	4,547	101,627	11,719	17,437	1,499	28,886	3,921	62,832	61.8	38,795	30,228	28,464	7,543
	4 mos.	242	233,942	19,889	287,675	42,911	49,644	5,507	106,866	16,731	221,025	76.8	66,650	32,302	28,108	—29,713
Detroit & Toledo Shore Line	April	50	248,362	.....	252,278	29,181	28,030	8,036	74,526	7,973	147,708	58.5	104,570	82,687	34,753	60,652
	4 mos.	50	1,122,168	.....	1,137,998	106,132	111,245	30,550	309,536	31,789	589,213	51.8	548,785	450,629	229,561	407,652
Detroit Terminal	April	19	.....	.....	101,410	9,966	9,344	.....	52,608	4,062	75,980	74.9	25,430	12,362	—1,028	24,603
	4 mos.	19	.....	.....	382,841	34,637	38,121	6	199,860	16,404	289,028	75.5	93,813	39,573	9,059	84,662
Detroit, Toledo & Ironton	April	498	545,406	977	560,190	79,295	88,283	13,356	186,620	31,789	398,568	71.1	161,622	104,563	92,378	510,075
	4 mos.	501	2,488,624	4,249	2,549,562	305,937	359,272	52,087	786,184	127,848	1,628,811	63.9	920,751	725,871	629,010	1,797,808
Duluth, Missabe & Northern	April	564	119,050	3,661	149,907	250,147	348,442	4,719	182,995	44,314	830,617	554.1	—680,710	—695,274	—693,172	—732,045
	4 mos.	564	406,903	14,012	508,021	664,194	1,253,468	17,687	742,991	156,734	2,834,678	558.0	—2,326,657	—2,573,522	—2,577,092	—2,671,151
Duluth, Winnipeg & Pacific	April	178	88,031	5,269	100,319	30,929	32,618	4,668	52,966	6,661	128,932	128.5	—28,613	—33,630	—22,494	—10,723
	4 mos.	178	409,912	24,687	456,059	93,279	139,489	18,136	235,844	28,619	520,197	114.1	—64,138	—86,993	—52,538	31,344
Elgin, Joliet & Eastern	April	447	1,320,829	6	1,450,707	181,031	320,757	16,019	558,733	53,862	1,130,513	77.9	320,194	213,398	141,918	377,270
	4 mos.	447	5,266,352	19	5,768,034	686,875	1,307,836	61,048	2,309,833	216,255	4,581,965	79.4	1,186,069	730,175	397,007	1,196,591
Erie Railroad	April	2,046	5,701,504	645,525	6,943,175	869,330	1,584,351	165,901	2,637,354	291,507	5,580,384	80.4	1,362,791	947,213	860,801	910,304
	4 mos.	2,046	22,503,202	2,550,510	27,298,513	2,900,298	6,103,838	640,932	10,618,862	1,136,755	21,516,750	78.8	5,781,763	4,298,569	4,056,405	3,572,519
Chicago & Erie	April	269	830,622	36,068	937,691	113,708	114,768	28,198	277,274	41,879	575,662	61.4	362,029	305,931	89,106	87,250
	4 mos.	269	3,369,727	139,826	3,754,312	407,509	449,277	112,498	1,132,384	169,378	2,268,745	60.4	1,485,567	1,261,325	277,665	549,294

Revenues and Expenses of Railways

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1931—CONTINUED

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of— Way and structures.	Equip. ment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1930.
New Jersey & New York	April	45	$29,302	$84,373	$117,438	$11,970	$21,263	$1,409	$61,818	$3,569	$100,029	85.2	$17,409	$13,029	—$18,651	—$18,903
	4 mos.	45	95,449	332,660	442,129	38,959	75,114	5,475	226,877	14,266	360,680	81.6	81,449	63,860	—57,526	—101,474
N. Y., Susquehanna & Western	April	131	334,178	33,931	396,037	47,364	48,491	4,838	154,659	14,408	269,746	68.1	126,291	93,581	60,360	41,439
	4 mos.	131	1,311,219	135,384	1,576,638	136,736	189,523	18,900	625,445	53,417	1,023,927	64.9	552,711	421,548	291,760	132,967
Florida East Coast	April	864	595,484	274,080	986,153	110,653	152,705	29,942	284,244	46,947	631,284	64.0	354,869	237,902	173,670	294,630
	4 mos.	864	2,376,308	1,675,937	4,688,928	530,782	696,094	134,043	1,246,062	189,222	2,885,070	61.5	1,803,858	1,336,992	1,080,156	1,772,906
Fort Smith & Western	April	249	50,507	3,266	58,920	12,557	9,424	4,981	27,760	5,727	60,152	102.1	—1,232	—4,853	—14,783	—15,345
	4 mos.	249	247,900	13,953	286,338	51,982	49,967	19,823	122,549	22,988	263,739	92.1	22,599	8,149	—27,211	3,378
Galveston Wharf	April	13	.....	.....	131,014	37,338	6,234	3,366	25,269	5,953	90,719	69.2	40,295	17,295	17,270	12,985
	4 mos.	13	.....	.....	521,405	140,949	19,944	15,243	102,983	28,948	359,572	69.0	161,833	69,598	69,697	36,535
Georgia R. R.	April	328	330,449	32,933	393,032	37,001	69,378	21,590	161,396	23,608	313,399	79.7	79,633	71,946	77,371	78,969
	4 mos.	328	1,186,439	116,189	1,415,353	140,264	266,725	85,590	643,273	93,517	1,230,616	87.0	184,737	153,937	196,774	236,369
Georgia & Florida	April	463	121,021	2,504	131,311	28,894	22,053	10,123	48,708	7,464	117,454	89.4	13,857	6,357	1,592	—3,566
	4 mos.	463	463,738	14,987	506,436	120,371	87,158	42,387	209,479	31,203	491,301	97.0	15,135	—14,867	—29,685	—12,027
Grand Trunk Western	April	1,019	1,781,766	101,149	2,033,431	341,483	410,877	68,411	822,747	105,416	1,751,522	86.1	281,879	165,473	3,476	397,598
	4 mos.	1,019	6,432,361	432,408	7,398,036	920,007	1,498,489	265,734	3,249,313	422,585	6,398,752	86.5	999,284	519,585	—258,535	1,097,779
Canadian National in New Eng.	April	172	79,947	12,215	108,342	21,943	36,229	5,643	71,998	8,831	147,987	136.6	—39,645	—54,555	—97,778	—120,938
	4 mos.	172	410,280	62,535	537,070	95,601	148,159	21,986	330,970	35,204	646,674	120.4	—109,604	—170,679	—367,154	—336,959
Great Northern	April	8,370	4,821,771	450,638	5,841,572	959,026	1,474,941	234,146	2,035,881	227,177	4,968,427	85.1	873,145	187,460	90,898	136,060
	4 mos.	8,370	19,146,644	1,942,594	23,377,968	2,709,940	5,622,657	903,775	8,826,482	929,587	19,183,274	82.1	4,194,694	1,480,267	927,634	674,385
Green Bay & Western	April	234	116,163	1,972	121,400	21,613	30,441	6,006	49,985	3,031	111,070	91.4	10,330	3,330	1,507	18,942
	4 mos.	234	456,536	6,910	475,791	81,993	107,230	22,765	203,310	12,355	427,451	89.8	48,340	14,340	10,117	97,072
Gulf & Ship Island	April	307	126,713	18,783	181,374	47,863	30,707	4,487	78,329	6,775	169,749	93.6	11,625	—18,377	—34,894	—3,712
	4 mos.	307	452,667	78,936	629,031	170,754	116,773	17,584	326,072	27,460	663,355	105.5	—34,324	—154,378	—206,633	44,907
Gulf, Mobile & Northern	April	733	357,162	12,100	387,491	59,616	49,720	26,983	133,522	23,283	293,353	75.71	94,138	67,396	40,434	73,066
	4 mos.	733	1,339,214	50,085	1,460,337	233,612	247,955	109,171	537,640	92,040	1,221,324	83.63	239,013	129,811	27,201	178,701
Illinois Central	April	5,018	6,709,567	1,072,764	8,927,349	994,009	2,025,921	230,406	3,439,314	391,120	7,149,246	80.1	1,778,103	1,116,667	954,573	1,265,279
	4 mos.	5,018	26,841,485	4,668,400	34,658,286	3,938,453	8,216,520	999,347	14,120,548	1,455,617	29,012,558	83.7	5,645,728	3,013,131	2,521,519	5,790,307
Yazoo & Mississippi Valley	April	1,681	1,126,873	128,627	1,349,621	233,321	298,484	44,079	614,787	73,451	1,268,419	94.0	81,202	—83,635	—234,453	228,770
	4 mos.	1,684	4,643,152	528,701	5,544,884	938,608	1,110,620	169,085	2,580,965	269,017	5,080,098	91.6	464,786	—188,829	—704,546	1,052,649
Illinois Central System	April	6,700	7,836,440	1,201,391	10,276,970	1,227,330	2,324,405	274,485	4,054,101	464,571	8,417,665	81.9	1,859,305	1,033,032	720,120	1,498,579
	4 mos.	6,703	31,484,637	5,197,101	40,203,170	4,877,061	9,327,140	1,168,432	16,701,513	1,724,634	34,092,656	84.8	6,110,514	2,824,302	1,816,973	6,855,770
Illinois Terminal	April	559	435,538	88,301	547,992	63,792	73,711	18,549	173,064	35,965	364,720	66.56	183,272	152,677	127,179	135,305
	4 mos.	559	1,666,479	354,519	2,124,353	227480	286,791	75,626	713,676	154,830	1,453,856	68.44	670,497	546,069	442,627	460,798
Kansas City Southern	April	784	870,090	43,483	1,037,959	117,956	195,210	57,777	330,433	71,678	770,746	74.3	267,213	165,693	134,934	200,910
	4 mos.	784	3,747,505	180,353	4,401,458	369,344	761,233	266,327	1,356,602	278,495	2,977,062	67.6	1,424,396	1,055,346	936,289	979,081
Texarkana & Ft. Smith	April	99	143,035	2,985	174,240	16,392	12,688	8,056	52,826	10,005	102,372	58.8	71,868	63,223	42,334	52,209
	4 mos.	99	503,757	12,088	585,982	65,961	46,551	29,510	183,357	40,689	375,095	64.0	210,887	176,288	88,584	124,503
Kansas, Oklahoma & Gulf	April	326	192,853	1,141	198,073	33,902	24,166	13,497	52,307	10,984	134,180	67.7	63,893	45,798	29,392	64,013
	4 mos.	326	801,863	4,898	824,432	91,921	91,541	55,050	209,243	45,896	491,276	59.6	333,156	259,508	188,228	328,149
Lake Superior & Ishpeming	April	160	47,058	540	52,949	19,856	20,280	625	27,128	7,760	75,649	142.9	—22,700	—39,839	—40,465	—32,565
	4 mos.	160	185,369	2,908	203,860	81,346	108,820	2,308	115,654	28,810	336,938	165.3	—133,078	—201,637	—210,836	—167,097
Lake Terminal	April	12	.....	.....	57,947	10,905	14,506	.....	31,779	1,576	58,766	101.4	—819	—5,499	—8,811	—19,557
	4 mos.	12	.....	.....	217,175	46,407	46,509	.....	128,026	6,039	226,981	104.5	—9,806	—28,526	—38,064	—63,517
Lehigh & Hudson River	April	96	177,918	754	187,399	16,728	24,806	4,088	58,446	8,846	112,914	60.3	74,485	57,534	40,401	24,809
	4 mos.	96	640,594	3,135	618,857	76,081	102,628	14,639	245,666	48,083	477,097	70.3	201,760	145,567	78,848	62,045
Lehigh & New England	April	216	396,614	767	400,527	51,623	83,824	5,232	129,678	21,059	291,416	72.8	109,111	92,165	102,798	98,904
	4 mos.	216	1,423,126	3,259	1,439,314	191,591	308,402	20,867	515,316	91,906	1,128,082	78.4	311,232	260,548	306,763	273,287
Lehigh Valley	April	1,361	3,997,182	375,140	4,740,874	543,673	996,126	127,982	1,843,377	133,359	3,668,784	77.4	1,072,090	177,784	642,958	377,420
	4 mos.	1,361	15,104,992	1,439,915	17,949,674	1,528,197	4,173,183	515,156	7,636,299	543,289	14,486,474	80.7	3,463,200	2,298,847	1,871,983	1,924,637
Louisiana & Arkansas	April	608	429,724	13,624	473,816	77,835	67,587	21,435	134,446	20,905	322,160	68.0	151,656	104,709	88,488	84,396
	4 mos.	608	1,584,370	50,621	1,739,654	284,756	234,349	85,358	526,841	92,324	1,224,871	70.4	514,783	329,604	271,255	381,324
Louisiana, Arkansas & Texas	April	202	52,336	1,308	56,943	21,847	9,612	3,620	23,178	4,528	62,785	110.3	—5,842	—9,405	—15,882	—12,282
	4 mos.	202	234,110	4,855	249,976	66,957	33,576	14,012	104,518	18,997	237,993	95.2	11,983	—3,909	—34,450	—85,580
Louisville & Nashville	April	5,268	6,416,822	703,029	7,712,081	1,187,028	1,672,129	231,821	2,913,275	387,209	6,433,781	83.4	1,278,300	789,008	694,563	817,095
	4 mos.	5,269	25,839,514	2,992,476	31,122,186	4,639,800	7,040,004	991,661	11,759,482	1,558,202	26,182,755	84.1	4,939,431	2,990,807	2,933,944	3,890,361

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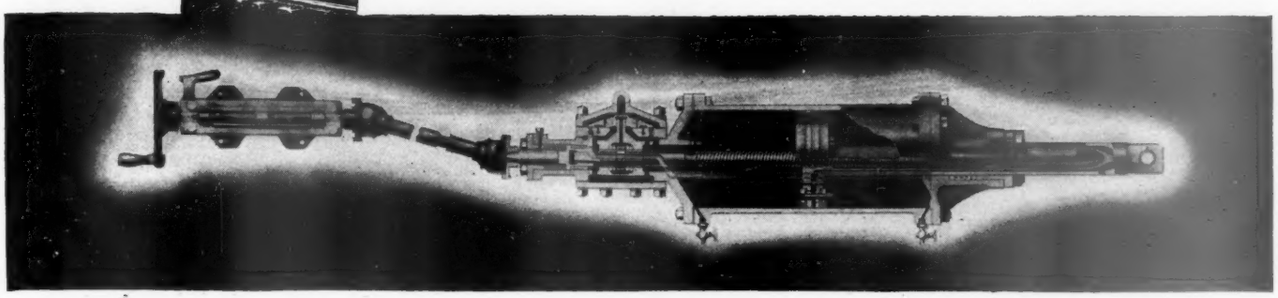
Help the Engineman use Steam Effectively



FRANKLIN PRECISION POWER REVERSE GEARS

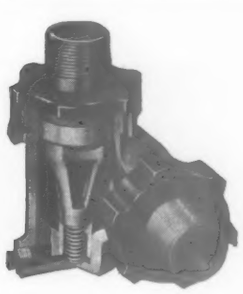
make it easy to get and keep the right cut-off

Great progress has been made in economical steam generation...but how efficiently is this steam used?

To a degree, the answer is in the hands of the engineman—hence the importance of the Precision Power Reverse Gear.

This gear makes it possible for the engineman to secure any desired cut-off with a minimum of physical effort and maintains that cut-off until the engineman wishes to change it. This encourages the engineman to employ his skill to get the utmost work out of each pound of steam.

Precision Power Reverse Gear is an essential element in the effort for fuel economy, and requires no emergency steam line since it can be manually operated in the event of air failure.

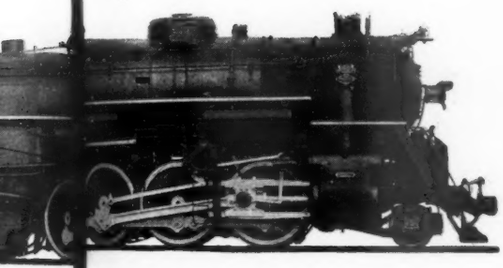


THE FRANKLIN SLEEVE JOINT assures a full area opening and unrestricted passage for air, steam and oil.

FRANKLIN RAILWAY SUPPLY CO., INC.

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO MONTREAL

g dollar go?



WITH Lima Super-Power your operating dollar will go at least 30% farther than with a locomotive built 10 years ago.

- This is being proved today when railroads are resorting to their Super-Power in preference to their older locomotives to get the maximum net return out of reduced traffic.
- The economy and efficiency of Super-Power locomotives will be further strikingly shown as traffic increases. With the resumption of normal business the high "net" ratio cannot be maintained if old and obsolete engines are returned to service.
- Insure continued efficiency by formulating now an effective motive power replacement program.

LIMA LOCOMOTIVE WORKS

Incorporated

LIMA - - - - - - - - - OHIO

Revenues and Expenses of Railways

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1931—CONTINUED

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry operating income, 1930.
Maine Central	April	1,121	$1,059,011	$155,253	$1,335,764	$191,781	$223,378	$19,098	$499,773	$50,921	$985,476	73.8	$350,288	$257,632	$195,837	$239,455
	4 mos.	1,121	4,200,786	676,912	5,331,509	745,307	918,165	67,441	2,142,874	187,581	4,063,478	76.2	1,268,031	904,108	646,381	1,099,368
Midland Valley	April	363	165,362	2,979	174,580	46,176	23,677	5,183	48,300	10,373	133,025	76.2	41,555	29,542	19,052	82,143
	4 mos.	363	649,377	11,660	688,231	119,295	87,236	21,883	200,687	47,081	474,762	69.0	213,469	162,040	114,589	275,515
Minneapolis & St. Louis	April	1,627	780,007	31,023	868,143	110,539	164,994	37,310	406,936	49,492	769,458	88.6	98,685	45,366	25,715	83,668
	4 mos.	1,627	3,007,060	131,511	3,363,506	374,907	712,364	150,335	1,668,061	193,200	3,095,068	92.0	268,438	67,972	—32,493	—105,692
Minneapolis, St. Paul & S. S. Marie	April	4,379	2,132,194	163,243	2,514,635	439,871	532,844	73,165	1,032,574	128,752	2,214,396	88.1	300,239	118,899	—27,481	79,432
	4 mos.	4,379	8,035,478	668,418	9,518,504	1,328,512	2,207,652	292,365	4,171,170	494,497	8,527,663	89.6	990,841	157,597	—379,383	—228,018
Duluth, South Shore & Atlantic	April	560	218,770	21,237	259,421	40,551	50,116	7,979	109,342	9,407	219,124	84.5	40,297	11,288	6,266	25,335
	4 mos.	560	842,635	93,367	1,007,177	132,866	185,107	31,476	452,818	39,843	849,485	84.3	157,692	34,669	9,690	52,372
Spokane International	April	163	54,535	3,989	63,771	14,171	6,294	3,673	24,600	5,910	55,302	86.7	8,469	3,431	144	6,847
	4 mos.	163	211,226	15,288	245,985	48,875	26,358	13,513	100,519	23,114	214,870	87.4	31,115	10,956	—2,243	—818
Mississippi Central	April	150	72,256	2,286	76,903	15,337	11,762	9,308	23,666	6,710	66,783	86.8	10,120	4,468	1,612	25,063
	4 mos.	150	315,779	9,024	335,453	59,051	56,265	36,566	104,915	26,974	283,771	84.6	51,682	28,994	16,069	84,682
Missouri & North Arkansas	April	364	116,189	2,231	124,476	20,873	13,894	9,062	42,152	8,630	94,551	75.9	29,925	26,578	14,918	28,731
	4 mos.	364	408,878	9,292	442,838	94,905	58,413	38,454	177,151	32,162	400,409	90.4	42,429	31,622	—13,345	59,813
Missouri-Illinois	April	202	106,842	918	110,357	19,296	21,341	3,552	35,374	6,322	84,912	76.9	25,445	22,752	17,437	31,726
	4 mos.	202	416,848	3,796	429,514	61,341	98,346	14,100	143,795	26,394	342,687	79.8	86,827	64,632	30,980	107,214
Missouri-Kansas-Texas Lines	April	3,188	2,178,344	276,342	2,760,831	360,196	544,094	128,746	1,008,450	165,143	2,224,236	80.6	536,595	334,221	131,788	554,526
	4 mos.	3,188	8,636,585	1,229,542	11,039,456	1,285,730	2,026,160	496,097	4,012,643	657,203	8,553,075	77.5	2,486,381	1,675,293	908,270	1,928,340
Missouri Pacific	April	7,450	6,779,781	600,162	8,140,251	1,022,688	1,336,627	262,905	2,989,269	355,195	5,993,064	73.6	2,147,187	1,793,036	1,455,914	1,474,565
	4 mos.	7,450	27,235,179	2,570,110	32,676,253	3,760,475	5,504,111	1,112,004	12,160,614	1,416,192	24,010,853	73.5	8,665,400	7,000,798	5,616,223	6,434,521
Gulf Coast Lines	April	1,037	1,218,918	69,439	1,369,861	175,485	172,205	45,676	358,751	64,291	817,387	59.67	552,474	503,588	358,605	379,330
	4 mos.	1,037	4,044,434	336,858	4,642,395	640,368	745,114	181,639	1,336,289	242,545	3,138,611	67.61	1,503,784	1,306,467	839,455	1,569,405
International-Great Northern	April	1,159	1,737,107	103,880	1,957,685	248,596	286,692	36,356	812,657	69,320	1,426,050	72.84	531,635	488,258	254,064	1,422
	4 mos.	1,159	5,184,324	437,560	6,070,621	853,479	924,890	155,084	2,458,970	265,546	4,624,157	76.17	1,446,464	1,283,098	691,742	18,996
San Antonio, Uvalde & Gulf	April	316	113,753	10,063	133,665	38,250	21,229	5,568	37,829	6,711	109,698	82.1	23,967	19,250	—8,190	18,806
	4 mos.	316	526,451	42,827	610,463	151,994	81,479	22,275	131,687	26,686	414,093	67.8	196,370	177,720	64,178	77,003
Mobile & Ohio	April	1,152	938,793	35,944	1,031,506	124,379	178,493	55,076	381,998	51,655	790,797	76.7	240,709	164,152	101,187	189,816
	4 mos.	1,152	3,403,719	147,705	3,770,904	490,624	716,499	212,406	1,528,455	202,251	3,142,577	83.3	628,327	375,655	135,718	446,039
Monongahela	April	177	401,398	3,051	407,407	60,000	45,000	1,351	98,208	10,969	215,528	52.9	191,879	187,379	103,444	115,511
	4 mos.	177	1,634,655	13,020	1,659,159	240,000	180,000	5,312	419,995	42,699	887,550	53.5	771,609	724,139	389,030	427,390
Monongahela Connecting	April	6	.....	.....	105,277	16,264	24,320	300	49,075	2,960	92,919	88.3	12,358	6,918	7,726	30,826
	4 mos.	6	.....	.....	396,067	50,722	101,563	1,200	212,110	11,968	377,563	95.3	18,504	—6,007	—6,571	101,249
Montour	April	57	130,448	.....	131,132	17,874	38,987	1,309	40,519	7,386	106,075	80.9	25,057	22,988	40,891	70,801
	4 mos.	57	654,886	.....	657,404	52,243	170,674	5,535	200,074	29,853	458,325	69,7	199,079	190,804	245,466	250,927
Nashville, Chattanooga & St. Louis	April	1,203	1,269,826	123,418	1,516,015	258,581	285,018	69,931	556,337	79,476	1,256,208	82.9	259,807	191,181	188,818	281,193
	4 mos.	1,203	4,544,516	543,792	5,620,406	907,372	1,143,300	299,822	2,175,701	313,356	4,865,326	86.6	755,080	509,185	446,729	891,818
Nevada Northern	April	165	37,976	2,192	47,327	[illegible]	1,500	1,038	10,861	5,281	32,992	69.7	14,335	6,721	9,224	19,218
	4 mos.	165	150,612	8,739	179,254	45,533	17,811	3,959	51,309	19,617	138,176	71.1	41,078	11,181	19,283	92,511
Newburgh & South Shore	April	6	.....	.....	111,383	21,186	25,505	.....	45,789	7,414	99,894	89.7	11,489	—1,526	2,508	209,473
	4 mos.	6	.....	.....	375,306	91,742	105,455	.....	184,864	28,704	410,765	109.4	—35,459	—87,518	—76,619	181,457
New Orleans Great Northern	April	264	167,309	9,741	182,832	18,375	29,471	14,463	53,735	10,674	126,718	69.3	56,114	45,760	27,804	43,435
	4 mos.	264	662,400	37,093	721,790	79,045	119,944	57,196	211,369	44,672	512,226	71.0	209,564	168,086	100,685	129,951
New Orleans Terminal	April	20	1,975	.....	138,412	16,726	8,845	.....	50,483	1,711	77,765	56.2	60,647	48,688	31,145	22,696
	4 mos.	20	7,990	.....	475,671	67,586	40,838	.....	201,544	6,207	316,175	66.5	159,496	111,669	28,999	125,945
New York Central	April	11,421	22,083,682	7,169,986	33,679,117	4,238,544	7,485,572	740,586	12,510,001	1,345,774	26,809,985	79.6	6,869,132	4,130,492	2,801,600	5,489,952
	4 mos.	11,421	86,524,911	30,075,792	133,011,198	15,758,334	29,435,682	2,885,971	50,966,883	5,451,480	106,653,337	80.2	26,357,861	15,167,687	10,138,901	19,945,620
Indiana Harbor Belt	April	118	.....	.....	804,814	70,000	95,000	4,638	351,313	28,909	567,587	70.5	237,227	202,452	128,664	239,013
	4 mos.	118	.....	.....	3,230,161	280,000	380,000	18,687	1,560,322	114,059	2,438,069	75.5	792,092	620,891	514,371	745,428
Pittsburgh & Lake Erie	April	235	1,479,312	108,813	1,637,396	139,394	462,548	33,059	622,176	77,430	1,338,207	81.7	299,189	203,123	392,631	602,942
	4 mos.	234	5,828,688	268,371	6,492,232	540,930	1,902,473	131,667	2,527,641	315,326	5,433,093	83.7	1,059,139	608,763	1,367,088	2,132,989
New York, Chicago & St. Louis	April	1,698	3,102,951	122,349	3,345,466	374,838	569,441	125,773	1,210,243	120,963	2,402,048	71.8	943,418	705,709	478,619	658,819
	4 mos.	1,698	12,188,780	472,214	13,107,313	1,393,993	2,416,058	488,531	5,009,784	513,976	9,836,404	75.0	3,279,909	2,365,147	1,285,124	2,232,870
N. Y., New Haven & Hartford	April	2,121	4,912,795	3,050,934	8,995,908	1,227,702	1,292,232	98,952	2,961,965	297,095	6,047,532	67.2	2,948,376	2,448,487	1,825,576	2,070,406
	4 mos.	2,121	18,309,892	11,984,861	34,251,884	3,889,089	5,440,079	368,921	11,875,742	1,185,673	23,424,572	68.4	10,827,312	8,670,001	6,234,109	7,705,730

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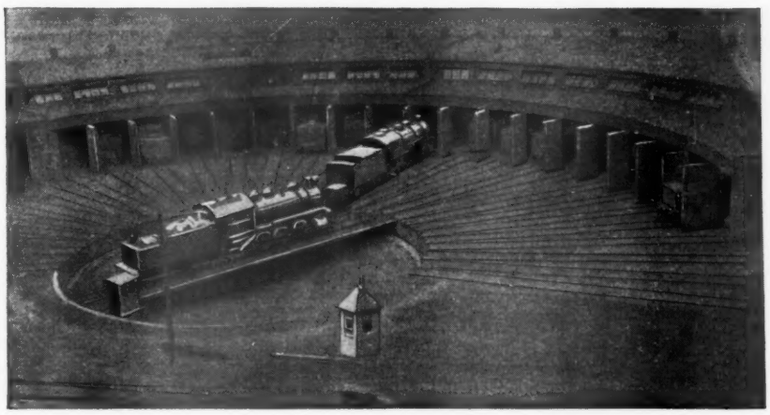
Be Sure no ARCH BRICK *is Missing*

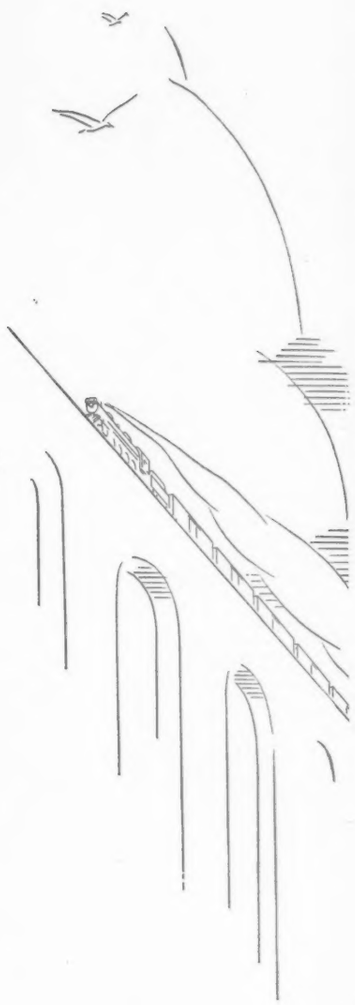


IN these days of rigid economy, don't draw the line too fine and let a locomotive leave the roundhouse with an imperfect Arch due to lack of supplies.

A single missing Arch brick has a mighty serious effect on the steaming and on efficiency of the locomotive.

Today, a dollar's worth of fuel means more than ever before. To spend it effectively, every locomotive Arch should be maintained in perfect condition.

Be sure your stocks on hand are ample to provide fully for all locomotive requirements, so that locomotive efficiency will not suffer.



THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK

HARBISON-WALKER REFRACTORIES CO.
Refractory Specialists

AMERICAN ARCH CO.
INCORPORATED
Locomotive Combustion Specialists

Revenues and Expenses of Railways

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1931—CONTINUED

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1930.
New York Connecting	April	20	$162,483	$.....	185,011	$13,932	$9,259	$.....	$35,411	$1,225	$59,827	32.3	$125,184	$88,034	$61,926	$76,864
	4 mos.	20	692,052	.....	766,449	54,891	25,756	.....	145,275	4,119	230.041	30.0	536,408	388,208	271,912	368,999
New York, Ontario & Western	April	568	680,581	38,675	862,761	91,080	169,733	15,924	351,560	31,988	661,550	76.7	201,211	158,609	72,548	—27,620
	4 mos.	568	2,697,106	134,588	3,362,004	309,761	630,412	59,321	1,452,579	114,899	2,582,002	76.8	780,002	609,746	352,861	—12,086
Norfolk & Western	April	2,242	5,772,654	226,915	6,237,192	770,823	1,361,232	120,459	1,725,349	252,207	4,228,133	67.8	2,009,059	1,333,964	1,428,564	2,258,850
	4 mos.	2,237	23,909,183	918,631	25,787,180	3,162,959	5,436,789	484,108	7,097,877	1,016,389	17,235,885	66.8	8,551,295	5,699,964	6,190,876	10,207,739
Norfolk Southern	April	932	522,873	15,789	564,409	81,664	87,681	26,181	219,474	24,615	439,546	77.9	124,863	75,561	57,487	88,807
	4 mos.	932	1,808,257	56,917	1,976,109	301,922	336,772	103,977	943,743	99,996	1,685,947	85.3	290,162	94,511	39,047	208,216
Northern Pacific	April	6,789	4,351,614	383,189	5,246,076	1,088,694	1,264,124	224,555	1,971,968	264,766	4,895,491	93.3	350,585	—300,542	9,358	215,296
	4 mos.	6,789	16,330,591	1,660,676	19,947,767	2,877,111	5,077,008	817,286	8,018,873	1,065,239	18,169,185	91.1	1,778,582	—831,087	415,561	1,342,152
Northwestern Pacific	April	441	178,779	107,103	322,742	99,116	68,950	9,044	173,392	15,604	365,290	113.2	—42,548	—78,660	—88,300	—55,856
	4 mos.	441	649,686	403,420	1,188,878	377,044	289,209	25,290	694,074	70,906	1,454,693	122.4	—265,815	—409,818	—444,614	—310,242
Oklahoma City-Ada-Atoka	April	132	52,303	1,267	55,436	17,405	5,204	1,066	16,956	3,049	43,424	78.3	12,012	6,887	—4,186	4,134
	4 mos.	132	194,358	6,116	210,285	58,659	14,642	4,772	68,095	12,667	158,304	75.3	51,891	32,028	—10,452	—13,544
Pennsylvania R. R.	April	10,891	28,442,126	8,225,796	40,720,388	5,209,200	8,618,778	781,807	15,306,322	1,647,261	32,157,821	79.0	8,562,567	5,575,491	4,370,993	9,570,360
	4 mos.	10,891	109,220,243	31,503,166	155,803,293	20,185,947	33,677,315	3,187,731	61,772,704	6,460,464	127,559,868	81.9	28,243,425	18,094,085	13,679,997	29,505,396
Long Island	April	404	863,800	1,940,195	2,976,402	267,161	493,814	13,881	1,212,630	61,193	2,048,649	68.8	927,753	706,561	533,425	497,044
	4 mos.	404	3,247,686	7,297,015	11,142,907	1,172,438	1,888,113	64,878	4,818,919	246,924	8,191,170	73.5	2,951,737	2,344,410	1,697,069	1,482,382
Peoria & Pekin Union	April	17	8,841	463	92,656	22,178	13,154	4,983	48,694	7,880	96,883	104.6	—4,227	—18,727	2,703	19,185
	4 mos.	17	33,269	2,057	408,382	44,608	44,499	20,204	205,045	31,529	345,879	84.7	62,503	—3,497	103,298	120,280
Pere Marquette	April	2,265	2,238,513	115,639	2,524,662	376,032	463,714	73,155	969,087	105,514	1,993,887	79.0	530,775	365,926	263,333	401,514
	4 mos.	2,265	8,362,177	498,744	9,402,972	1,[illegible]42	1,896,722	277,157	3,869,144	413,935	7,984,490	84.9	1,418,482	806,934	495,081	1,365,283
Pittsburgh & Shawmut	April	102	78,557	1,617	81,036	12,531	20,419	1,623	20,769	4,606	59,948	74.0	21,088	18,226	18,713	30,213
	4 mos.	102	294,172	6,930	304,607	50,953	89,718	6,597	86,119	16,717	250,104	82.1	54,503	48,386	47,635	114,138
Pittsburgh & West Virginia	April	92	251,787	2,148	280,238	29,398	66,897	22,693	54,798	17,283	200,114	71.3	80,124	50,567	81,626	169,391
	4 mos.	92	929,360	8,890	1,047,614	112,246	266,071	79,781	212,277	76,910	784,038	74.8	263,576	171,603	286,092	486,236
Pittsburgh, Shawmut & Northern	April	198	103,192	370	105,510	[illegible]	18,829	1,482	35,584	6,338	78,034	198.2	27,476	24,624	19,508	18,392
	4 mos.	198	417,278	1,608	428,673	56,773	79,383	5,930	149,087	26,779	317,952	74.2	110,721	99,522	87,420	104,543
Quincy, Omaha & Kansas City	April	249	25,955	4,014	35,122	20,009	4,645	998	18,990	2,276	46,752	133.1	—11,630	—16,390	—18,761	—14,651
	4 mos.	249	104,289	14,076	138,312	55,186	22,646	3,999	80,583	9,268	171,256	123.8	—32,944	—51,965	—61,582	—32,460
Reading	April	1,454	5,382,669	401,217	6,281,098	963,229	1,689,370	95,571	2,542,654	236,391	5,548,169	88.3	732,929	510,087	460,113	747,711
	4 mos.	1,454	22,132,328	1,668,378	25,502,133	3,787,519	6,748,174	367,438	10,408,416	919,792	22,317,457	87.5	3,184,676	2,277,433	2,137,019	3,579,550
Atlantic City	April	163	114,916	66,653	195,273	67,294	17,834	4,268	147,007	4,061	240,532	123.2	—45,259	—86,859	—96,527	—90,279
	4 mos.	163	407,864	210,699	665,282	238,212	75,208	14,144	591,259	17,216	936,896	140.8	—271,614	—438,014	—475,503	—454,116
Richmond, Fredericksburg & Pot	April	117	469,696	265,442	923,827	74,746	149,224	11,731	306,584	43,741	610,649	66.1	313,178	258,078	185,169	113,896
	4 mos.	117	1,758,342	1,160,741	3,605,645	249,121	602,709	38,489	1,236,928	149,768	2,367,321	65.7	1,238,324	1,018,071	738,296	695,071
Rutland	April	413	267,512	52,580	409,478	61,776	73,969	11,195	169,841	16,221	334,833	81.8	74,645	53,815	60,776	67,554
	4 mos.	413	889,736	249,460	1,484,426	288,303	307,570	44,267	669,270	66,109	1,382,266	93.1	102,160	18,658	40,428	153,734
St. Louis-San Francisco	April	5,266	3,965,888	458,139	4,849,794	524,015	840,210	118,667	1,738,910	213,687	3,476,136	71.7	1,373,658	1,004,062	981,712	1,333,338
	4 mos.	5,266	15,186,901	1,905,259	18,734,793	2,012,466	3,437,504	479,393	6,922,493	831,281	13,818,152	73.8	4,916,641	3,537,664	3,359,008	5,303,435
Ft. Worth & Rio Grande	April	233	46,904	3,704	58,273	16,815	16,365	3,173	36,858	4,410	77,612	133.2	—19,339	—23,815	—36,476	—31,114
	4 mos.	233	148,924	14,618	192,806	72,991	54,187	12,105	136,474	16,307	291,799	151.3	—98,993	—117,694	—154,744	—107,709
St. Louis, San Francisco & Texas	April	262	87,253	7,726	100,386	23,400	19,605	5,848	50,818	7,684	107,439	107.0	—7,053	—11,213	—44,592	—18,620
	4 mos.	262	359,548	27,544	405,182	92,957	74,586	23,920	202,204	31,733	425,447	150.0	—20,265	—37,126	—162,085	—59,975
St. Louis Southwestern Lines	April	1,913	1,381,471	44,129	1,538,447	179,688	238,487	105,540	515,511	85,925	1,132,352	73.6	406,095	313,534	159,080	286,508
	4 mos.	1,913	5,339,861	175,710	5,919,456	844,329	999,890	423,574	2,177,208	339,225	4,804,164	81.2	1,115,292	764,286	201,339	850,474
San Diego & Arizona	April	155	44,790	7,997	54,885	15,660	15,279	3,271	19,897	7,152	62,428	113.7	—7,537	—13,116	—11,944	23,882
	4 mos.	155	197,034	72,406	278,553	55,898	59,924	13,820	88,634	29,074	251,958	90.5	26,595	4,270	11,325	95,581
Seaboard Air Line	April	4,481	3,560,956	337,658	4,344,731	740,037	766,967	178,010	1,452,457	183,349	3,365,308	77.5	979,423	637,432	523,078	550,432
	4 mos.	4,481	13,200,359	2,072,882	16,950,916	2,565,697	2,981,783	739,576	5,970,230	706,400	13,216,385	78.0	3,734,531	2,369,116	1,802,708	2,911,665
Southern Ry.	April	6,730	7,303,715	1,108,493	9,148,460	1,377,653	1,811,075	224,966	3,352,955	348,430	7,180,340	78.5	1,968,120	1,318,727	1,044,370	2,020,726
	4 mos.	6,730	27,199,903	4,456,495	34,401,192	5,370,293	7,206,942	913,135	13,199,644	1,373,476	28,323,772	82.3	6,077,420	3,450,853	2,609,950	5,756,516
Alabama Great Southern	April	315	465,594	64,069	568,315	103,328	128,835	16,013	190,615	22,627	465,290	81.9	103,025	60,304	69,652	135,552
	4 mos.	315	1,717,599	267,144	2,141,786	435,840	515,778	68,005	786,274	89,353	1,913,787	89.4	227,999	56,046	102,588	444,542
Cinn., New Orleans & Tex. Pac.	April	338	1,081,751	119,016	1,276,331	292,698	318,572	33,899	381,420	55,310	1,088,154	85.3	188,177	118,680	114,792	265,349
	4 mos.	338	4,220,219	580,501	5,109,033	994,201	1,286,056	143,120	1,682,726	216,039	4,357,766	85.3	751,267	458,838	462,020	1,245,030

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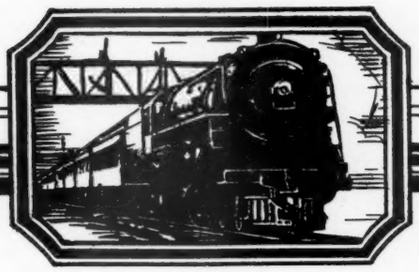

Alco Alco

TO ECONOMIZE— MODERNIZE

The factor of obsolescence is an important one in any industry. In the absence of thorough investigation it is almost sure to be underestimated.

Our railroads each week report to the American Railway Association the number of locomotives in need of repair and the number of serviceable locomotives in storage. But this report, dealing with the locomotives' physical condition, has very little to do with the story of obsolescence—it is earning power that really counts.

Therefore, consider the earning power of the locomotives you have as compared with the earning power of the locomotives you might have. Measured by this standard the condition of the motive power in general is astounding.

With the need for operating economies greater than ever, the majority of the railroads need today and will need tomorrow the utmost that the improved locomotive has to offer.

Cost reduction is and always will be a sound investment.

American Locomotive Company

30 Church Street New York N. Y.

Alco Alco

Revenues and Expenses of Railways

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1931—CONTINUED

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equip. ment.	Traffic.	Trans-portation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1930.
Georgia Southern & Florida	April	397	$181,844	$46,429	$249,894	$58,202	$61,320	$2,553	$90,947	$3,200	$220,131	88.1	$29,763	$5,777	$1,832	$11,098
	4 mos.	397	732,539	267,701	1,094,426	226,129	243,871	8,520	404,180	11,440	918,711	83.9	175,715	97,200	91,998	171,679
New Orleans & Northeastern	April	204	215,446	33,453	269,125	51,985	68,406	8,928	104,486	14,547	250,511	93.1	18,614	—19,847	—42,018	29,267
	4 mos.	204	867,466	138,007	1,086,296	205,870	263,972	40,024	428,214	56,200	1,004,793	92.5	81,503	—78,732	—175,676	70,638
Northern Alabama	April	110	64,255	2,424	69,102	11,529	2,412	1,968	24,826	2,755	43,490	62.9	25,612	20,068	3,512	21,153
	4 mos.	110	228,052	9,676	246,628	72,879	10,217	7,164	96,362	11,588	198,210	80.4	48,418	26,284	—28,101	42,556
Southern Pacific	April	9,127	8,670,077	2,249,438	12,156,049	1,556,405	2,387,013	392,729	4,429,709	596,796	9,574,323	78.8	2,581,726	1,339,575	975,620	2,182,413
	4 mos.	9,127	34,509,816	9,446,603	48,441,338	6,557,509	9,747,602	1,438,361	17,893,185	2,477,510	29,045,282	80.6	9,396,056	4,538,831	3,324,116	8,332,230
So. Pacific Steamship Lines	April	....	469,819	41,477	545,998	18,983	149,099	19,745	435,261	32,799	655,887	120.1	—109,889	—111,104	—111,237	—74,032
	4 mos.	....	1,796,343	146,659	2,083,486	83,871	597,307	81,112	1,619,019	130,791	2,512,100	120.6	—428,614	—433,492	—434,020	—274,595
Texas & New Orleans	April	4,700	2,916,622	454,279	3,825,489	625,199	812,063	158,760	1,459,595	234,651	3,305,863	86.4	519,626	231,371	—546	345,857
	4 mos.	4,700	11,851,029	2,043,915	15,543,680	2,605,788	3,377,640	653,056	5,906,275	955,553	13,560,153	87.2	1,983,527	1,010,516	102,001	1,521,219
Spokane, Portland & Seattle	April	555	398,735	45,313	498,251	55,723	71,744	11,263	169,533	22,603	333,019	66.8	165,232	79,268	99,179	84,546
	4 mos.	555	1,533,392	183,895	1,897,242	217,631	317,079	44,780	676,804	90,484	1,355,265	71.4	541,977	198,066	192,425	317,519
Tennessee Central	April	295	226,512	8,212	244,752	44,427	35,440	8,164	86,374	14,691	188,483	77.0	56,269	50,765	35,320	18,499
	4 mos.	295	851,658	33,402	929,790	191,155	156,600	35,318	341,812	57,157	780,470	83.9	149,320	126,606	62,905	26,445
Terminal R. R. Assn. of St. Louis	April	55	.....	.....	699,667	100,308	71,521	3,573	335,151	23,195	536,813	76.7	162,854	85,476	163,807	212,272
	4 mos.	55	.....	.....	2,797,498	412,228	289,509	14,186	1,386,624	95,304	2,209,723	79.0	587,775	224,118	545,093	830,600
Texas & Pacific	April	1,950	2,309,657	293,202	2,825,337	302,615	418,718	83,056	881,373	124,867	1,819,759	64.4	1,005,578	844,893	653,306	788,917
	4 mos.	1,953	8,348,917	1,155,738	10,356,645	1,250,746	1,681,980	328,466	3,400,828	469,700	7,179,854	69.3	3,176,791	2,638,728	1,870,261	2,286,745
Texas Mexican	April	162	82,953	2,321	103,442	15,483	16,914	4,094	41,818	7,863	85,085	82.3	18,357	13,353	5,858	2,386
	4 mos.	162	275,959	7,462	351,408	66,084	64,559	14,151	160,879	30,952	334,324	95.1	17,084	—2,966	—26,337	—12,455
Toledo, Peoria & Western	April	239	138,614	92	141,546	27,893	12,513	14,740	48,986	8,516	112,648	79.6	28,898	21,808	15,387	26,709
	4 mos.	239	517,878	459	529,639	89,556	49,740	57,556	191,959	35,833	424,644	80.2	104,995	84,359	60,734	47,297
Toledo Terminal	April	28	.....	.....	94,592	13,524	14,509	550	38,588	4,936	72,107	76.2	22,485	8,787	31,570	22,627
	4 mos.	28	.....	.....	383,265	40,431	55,443	2,251	158,534	19,603	276,260	72.1	107,005	50,786	148,805	146,756
Ulster & Delaware	April	128	49,346	1,681	89,704	13,664	13,476	1,089	38,255	3,779	70,263	78.3	19,441	13,841	10,438	4,504
	4 mos.	128	111,903	7,089	265,928	50,912	47,884	4,485	137,305	15,359	255,945	96.2	9,983	—7,417	—14,460	—31,340
Union R. R. of Penna	April	45	.....	.....	448,940	112,764	150,042	152	236,672	14,482	514,106	114.5	—65,166	—74,166	—24,403	86,918
	4 mos.	45	.....	.....	1,711,866	376,429	599,540	599	963,048	57,930	1,997,505	116.7	—285,639	—324,039	—110,876	373,136
Union Pacific	April	3,765	5,734,562	755,896	7,173,974	919,586	1,713,544	198,049	2,150,854	343,948	5,446,552	75.9	1,727,422	1,117,661	819,835	1,150,249
	4 mos.	3,765	22,707,967	2,934,735	28,258,645	2,892,126	6,692,778	656,051	8,694,397	1,350,284	20,758,611	73.5	7,500,034	4,966,957	4,040,223	4,618,503
Oregon Short Line	April	2,531	1,993,169	160,088	2,326,533	468,610	399,862	58,857	701,226	120,172	1,792,312	77.0	543,221	244,396	138,434	99,994
	4 mos.	2,531	7,918,726	695,525	9,308,138	1,271,540	1,604,856	211,490	2,938,074	498,256	6,732,200	72.3	2,575,938	1,420,484	1,026,254	1,386,072
Oregon-Wash. R. R. & Nav. Co.	April	2,337	1,220,496	131,665	1,530,602	442,163	263,489	77,579	711,126	125,503	1,632,825	106.7	—102,223	—285,615	—375,674	—73,868
	4 mos.	2,337	5,005,615	536,118	6,222,011	1,274,999	1,045,626	284,173	2,758,007	495,643	5,938,077	95.4	283,934	—449,602	—879,960	—104,451
Los Angeles & Salt Lake	April	1,250	1,268,673	225,866	1,650,334	312,815	262,362	82,286	512,698	87,055	1,305,586	79.1	344,748	196,603	67,728	86,263
	4 mos.	1,243	5,016,580	855,846	6,442,155	1,244,443	1,149,249	288,345	2,153,255	339,537	5,371,485	83.4	1,070,670	488,046	—35,998	517,119
St. Joseph & Grand Island	April	258	258,301	4,594	275,106	54,741	33,978	3,377	84,619	17,881	197,557	71.8	77,549	61,019	35,404	41,004
	4 mos.	258	1,015,959	18,107	1,071,206	152,698	134,900	13,696	342,437	69,275	716,804	66.9	354,402	282,351	181,110	225,038
Utah	April	111	78,790	.....	78,905	11,455	28,010	369	18,850	5,163	63,847	80.9	15,058	11,597	3,260	—4,296
	4 mos.	111	483,014	36	486,167	60,441	134,718	1,460	113,468	21,861	330,992	68.1	155,175	117,244	72,372	83,886
Virginian	April	562	1,110,945	14,853	1,187,079	129,889	241,511	17,265	282,675	31,689	702,523	59.2	484,556	339,541	412,385	566,073
	4 mos.	562	4,793,019	62,346	5,164,232	535,884	1,044,212	60,955	1,164,799	127,802	2,938,575	56.9	2,225,657	1,615,589	1,893,517	2,576,745
Wabash	April	2,523	3,778,822	343,940	4,445,348	360,453	819,141	187,499	1,900,452	225,812	3,513,455	79.0	931,893	706,541	294,637	707,867
	4 mos.	2,523	14,280,394	1,372,817	16,857,904	1,259,064	2,949,227	735,006	7,744,349	897,313	13,666,540	81.1	3,191,364	2,437,816	902,416	2,324,180
Ann Arbor	April	293	353,492	5,550	371,152	27,422	68,641	15,238	165,414	17,823	294,643	79.4	76,509	58,997	36,203	35,032
	4 mos.	293	1,374,354	23,179	1,436,375	105,823	265,567	57,603	662,998	70,558	1,162,590	80.9	273,785	186,200	86,540	141,267
Western Maryland	April	896	1,221,383	9,495	1,285,717	192,517	233,682	45,962	356,593	44,053	876,596	68.2	409,121	334,121	346,487	429,745
	4 mos.	896	4,981,161	38,624	5,221,657	732,808	893,855	179,410	1,441,279	166,479	3,427,671	65.6	1,793,986	1,493,986	1,517,335	1,820,032
Western Pacific	April	1,051	912,188	60,333	1,060,432	308,972	220,015	71,406	452,777	56,028	1,142,197	107.7	—81,765	—172,875	—189,246	—186,059
	4 mos.	1,051	3,367,595	205,078	3,842,473	736,424	870,494	266,826	1,804,676	202,472	3,946,801	102.7	—104,328	—479,125	—425,645	—400,778
Wheeling & Lake Erie	April	511	954,414	8,955	1,033,642	132,948	285,212	35,372	333,980	40,573	829,069	80.2	204,573	102,218	103,291	245,257
	4 mos.	511	3,634,900	43,475	3,899,179	397,616	1,128,980	138,371	1,316,620	160,756	3,146,062	80.7	753,117	347,946	330,225	945,198
Wichita Falls & Southern	April	203	46,238	84	47,696	9,920	8,377	2,553	17,348	3,230	41,028	86.02	6,688	2,454	—1,166	21,171
	4 mos.	203	187,259	475	194,194	40,714	34,384	10,184	75,715	15,535	174,733	89.98	19,461	1,433	—14,933	41,033

News Department Continued on Next Left Hand Page

GEO *insures* DOUBLE SATISFACTION

GEO . . the modern solution to track problems . . guarantees satisfaction from two distinct angles. For the passenger is provided smooth and practically noiseless track, greater speed and greater safety. This should be reason enough to dictate the selection of GEO. What is more important than passenger satisfaction? Yet this modern method of track construction has many other points of superiority. Control of rail movement, reduction in rail wave motion, longer life of rails and ties, radically reduced maintenance costs . . . . these are advantages which maintenance of way men cannot afford to overlook.

G E O is not a new, experimental device. Many thousands of miles of G E O track have been laid in Europe during the past five years and new construction is adding several thousand miles yearly. Here in America, test sections on leading railroad systems are demonstrating G E O to be the most important contribution to railroad track construction of the past decade.

Descriptive literature will be sent at your request, and Carnegie Engineers are at your service at all times.

CARNEGIE STEEL COMPANY - PITTSBURGH

Subsidiary of United U.S. STEEL *States Steel Corporation*

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GEO TRACK CONSTRUCTION

News

(Continued from page 1165)

in May and the car repair forces at a number of terminal repair points were increased to the same end. The Chicago, Rock Island & Pacific, the Atchison, Topeka & Santa Fe and the Missouri Pacific have also been accumulating cars in this territory.

In order to have an accurate check on the demand for cars, the Car Service division of the American Railway Association will locate 10 inspectors in the grain territory to make daily reports on the demand for cars. The reports will be forwarded to St. Louis for consolidation.

B. & O. To Participate in Chicago Exposition

The Baltimore & Ohio has signified its intention of participating in the Century of Progress Exposition in Chicago in 1933 and has signed a contract for a block of exhibit space in the Travel and Transportation building, now virtually completed on the grounds of the 1933 World's Fair on the lake front. It is the first railroad to reserve space in the exposition.

The co-operation of the Brotherhood of Railroad Trainmen with the exposition was pledged in resolutions passed at their recent convention in Houston, Texas, a copy of which has been received by John Stephen Sewell, director of exhibits.

C. N. R. Official Salaries Attacked

Salaries and wages paid to employees and officers of the Canadian National provoked a lively discussion last week in Ottawa at the first meeting of the special House Committee on Canadian National Railways and Sir Henry Thornton, president of the railway, took a firm stand against divulging the salaries paid to officers of the road.

D. M. Kennedy (Progressive, Peace River, Alta.) was the first to make a request for the salary list and later R. B. Hanson (Conservative, York-Sunbury, Ont.) made a similar request.

Sir Henry, replying to Mr. Kennedy's request, said: "We have found upon one or two occasions in the past, where the salary of an important efficient officer has been given, that he has had immediately offers from other companies elsewhere, and an attempt to attract him from our service. That is one reason for declining to divulge salaries. The second reason is that the conditions of service and emoluments to officers are properly the function of the board of directors. If the board of directors have not that function, then they have no function. That is one of the responsibilities with which they have been charged."

Mr. Hanson referred to a statement that there were a number of C.N.R. officers whose salaries exceeded that of the Prime Minister of Canada. To this Sir Henry replied that the Prime Minister was notoriously underpaid.

To show the reduction both in employees and in wage total payments Sir Henry stated that the 1930 payroll showed a reduction from 1929 of $17,000,000. The total payroll in 1923 was $154,600,000 with 108,000 employees; in 1930 there were 100,000 employees and a payroll of $156,000; while in April this year the payroll was on an annual basis of $142,000,000 with 89,199 employees. There are, he said, 2,104 employees getting over $3,000 per annum and their total remuneration is $990,000 annually. In 1929 the total payroll was $174,345,000 and the number of employees 111,575. "The scale of salaries," said Sir Henry, "which are paid on the Canadian National Railways is commensurate and the same as those paid for similar service generally on the railways in Canada and the United States."

Intrastate Rate Orders of I. C. C. Are Sustained

(Continued from page 1160)

valid and practicable of operation over a wide territory. The appropriate remedy under such circumstances is an application to the Commission requesting it to suspend the operation of the order insofar as it may affect the isolated cases; and, if necessary, to enter an independent order dealing specifically with them."

"When an investigation involves shipments from and to many places under varying conditions, typical instances justify general findings. While the order relates only to a few commodities, the scales of rates are statewide in operation; and they apply to shipments between hundreds of points of origin and destination. To require specific evidence and separate adjudication in respect to each would be tantamount to denying the possibility of granting relief."

The contention that the order was an arbitrary exercise of the Commission's limited power over interstate rates and that it constitutes an invasion of the sovereign rights of the State was not sustained. Georgia Public Service Commission v. United States. Decided June 1, 1931. Opinion by Mr. Justice Brandeis.

In another decision the Supreme Court sustained the order of the I. C. C. issued October 3, 1927, and modified on December 22, 1927, by which the Atlantic Coast Line and other railroads were required to establish and maintain intrastate rates in Alabama for fertilizers not lower, for corresponding distances, than interstate rates therefore prescribed by the Commission. Fertilizers and Fertilizer Materials Between Southern Points, 113 I. C. C. 389; 123 I. C. C. 193; 129 I. C. C. 215.

In this suit, by the State of Alabama, the federal district court dismissed the bill, 42 F. (2d) 469. This decree is affirmed by the Supreme Court on direct appeal.

The findings of the Interstate Commerce Commission are held to be definite; to afford a sufficient basis for the order; and to be supported by evidence. None of the applicant's objections was sustained. Alabama v. United States et al. Decided June 1, 1931. Opinion by Mr. Justice Brandeis.

Equipment and Supplies

LOCOMOTIVES

THE ALBANY (N. Y.) PORT DISTRICT COMMISSION has given a contract for two gas electric locomotives to the Mid-West Locomotive Company. These locomotives are 200 hp. gasoline-electric of the two truck type, with motor drive to each axle. Each locomotive will be equipped with dual gasoline engine power plants direct connected to the electric generators. Inquiry for one locomotive was reported in the *Railway Age* of March 28.

FREIGHT CARS

THE UNITED STATES NAVY DEPARTMENT is receiving bids until June 16 for two to six tank cars for transporting helium gas.

IRON & STEEL

THE LEHIGH VALLEY has placed orders for its year's requirements of new rail amounting to 5,000 tons of 136-lb. section.

THE ERIE has ordered 240 tons of steel for a bridge at Port Jervis, N. Y. from the American Bridge Company.

THE BALTIMORE & OHIO has ordered 200 tons of steel for a bridge at Dayton, Ohio, from the McClintic-Marshall Company.

THE NEW YORK CENTRAL has given a contract to the Jones & Laughlin Steel Corporation for 500 tons of steel for a bridge at Schuyler Junction, N. Y.

THE MISSOURI PACIFIC has ordered 1,370 tons of structural steel for miscellaneous bridge work and 300 tons for a bridge at Fulton, Ark., from the American Bridge Company.

THE PORT OF NEW YORK AUTHORITY will issue inquiries shortly for the superstructure of the Union Inland Freight Terminal to be built between Eighth and Ninth avenues and Fifteenth and Sixteenth streets, New York City. The work will require about 22,500 tons of steel.

SIGNALING

THE NEW YORK, NEW HAVEN & HARTFORD has authorized the replacing of wire connected signals with electric signals and of wire-operated home signals with pipe connected signals, between Readville, Mass., and Chickering, at an estimated cost of approximately $40,000.

THE CHICAGO, ROCK ISLAND & PACIFIC and the Chicago, Milwaukee, St. Paul & Pacific, will open their new jointly owned line between Kansas City, Mo., and Trenton to freight traffic on July 1. Passenger traffic will be routed over the new line on October 1.

Continued on Next Left Hand Page

Supply Trade

The Truscon Steel Company of Canada, Ltd., has opened an office at 620 Vancouver block, Vancouver, B. C. **E. G. Ryley** has been appointed manager.

T. G. Muir, assistant sales manager of the **Morgan Engineering Company,** Alliance, Ohio, has been promoted to director of sales, and has been succeeded by **A. T. Davis.**

The Monarch Machine Tool Company, Sidney, Ohio, has opened an office and showroom at 547 West Washington boulevard, Chicago, under the charge of **Martin J. Luther.**

Poor & Company, Chicago, completed a quarter century's service to the railways on June 6. The original company, which later developed into the P & M Company and then into Poor & Company, was founded on June 6, 1906.

George F. Newell, representative of the **Charles Engelhard Company,** with headquarters at Chicago, has resigned to become vice-president and general manager of the **Pyrometer Service & Supply Corporation,** with headquarters at Cleveland, Ohio.

F. C. Pickard has retired as works manager of **The Standard Stoker Company, Inc.,** and the following appointments have been made: **H. P. Anderson,** chief plant engineer; **A. C. Secor,** shop superintendent and **N. J. Shea,** chief plant clerk, all with offices at Erie, Pa.

H. A. Paarman, secretary and treasurer of the Scientific Production Corporation, New York, has resigned to become vice-president in charge of sales, eastern district, of the **Grip Nut Company,** with headquarters in the Graybar building, 420 Lexington avenue, New York City.

The **American Brown Boveri Electric Corporation** has sold its electrical assets to the **Allis-Chalmers Manufacturing Company** and has cancelled its electrical connections in Switzerland. This action has yet to be approved by the stockholders of the American Brown Boveri Electric Corporation.

In 1924 **Joseph T. Ryerson & Son, Inc.,** Chicago, purchased the interest of W. J. Reed and others in the **Reed-Smith Company,** Milwaukee, Wis. Now the Ryerson Company has purchased the remaining stock and the firm becomes the **Reed-Smith Plant of Joseph T. Ryerson & Son of Wisconsin, Inc.**

D. J. Quammen, for the past five years sales engineer at the Philadelphia, Pa., office of **Cutler Hammer, Inc.,** Milwaukee, Wis., has been appointed manager of the Philadelphia district office, to succeed **F. J. Burd,** who has been appointed assistant manager of the Chicago office and will have charge of industrial sales in the Chicago district.

Effective June 1 the **Lapeer Trailer Company,** Lapeer, Mich., and the **Trailmobile Company,** Cincinnati, Ohio, were consolidated under the name of the **Trailer Company of America. J. Englaender** is president of the Trailer Company of America. Other officers are: **Frank H. Simpson,** vice-president; **A. J. Woltering,** secretary and treasurer; **R. E. Orwick,** general sales manager; **R. B. Jones,** chief engineer; **E. W. Crowe,** factory manager.

Manning, Maxwell & Moore, Inc., New York, will continue the manufacture of its Shaw overhead electric traveling cranes at Muskegon, Mich., and its direct sales office for the Chicago territory is now located at 80 East Jackson Boulevard, Chicago. This is a correction of the company's previous announcement, published in the *Railway Age* of May 9, 1931, page 935, in which it was incorrectly stated that the direct sales of Shaw overhead electric traveling cranes had been discontinued in the Chicago territory.

The American Locomotive Company and the **Railway Steel-Spring Company** have opened an office at Washington, D. C. in the Barr building, Seventeenth street, northwest, which will be in charge of **Major W. G. Lockwood,** general southern representative. These companies' offices in Richmond, Va., have been closed, and **Ross Anderson,** district sales manager, and **B. C. Woody,** sales agent, will be transferred to Washington. The Washington office, in addition to handling the business of the aforementioned companies, will also look after the interests of **McIntosh & Seymour,** and **Alco Products, Inc.,** both of which are subsidiaries of the American Locomotive Company.

M. H. Hovey, representative of the **Railroad Supply Company,** Chicago, has been appointed assistant to the president. He was born in March, 1879, in Gouldsboro, Me., and began signal work

M. H. Hovey

at Chicago in 1897. He was in the employ of the National Switch & Signal Company, the Hall Signal Company, the Taylor Signal Company, the Houston & Texas Central and the General Railway Signal Company, during the period until September, 1906, when he was appointed signal engineer of the Illinois Central. In September, 1908, he became associated with the Block Signal and Train Control Board of the Interstate Commerce Commission and was also connected with the Indiana Railway Commission in signaling work. In January, 1910, he was appointed a member of the engineering staff of the Wisconsin Railway Commission, continuing his relations with the Block Signal and Train Control Board and the Indiana Railway Commission. He resigned from the Wisconsin Railway Commission in January, 1913, and engaged in consulting signal engineering, with headquarters at Madison, Wis. He entered the employ of the Railroad Supply Company in May, 1929, and was appointed assistant to the president on May 15, 1931.

OBITUARY

W. M. Rynerson, New York representative of the Carter Bloxonend Flooring Company, Kansas City, Mo., died on May 29.

Construction

CANADIAN NATIONAL.—This company plans to proceed during 1931 with the construction of a connection between two of its existing branch lines, between St. Walburg, Sask., and Bonnyville, Alta., about 100 miles.

CANADIAN PACIFIC.—A contract has been let to Macaw & Macdonald, Winnipeg, Man., for the construction of the substructure of a highway subway under the tracks of this company at Kemnay, Man. The total cost of this project is estimated at $130,000. A contract for the construction of the substructure of a highway subway which will carry Winnipeg street under this railroad's tracks at Regina, Sask., has been awarded to the Carter-Halls-Aldinger Company, Winnipeg, at a cost of about $65,000.

CHESAPEAKE & OHIO.—Contracts have been awarded by this company to the West Virginia Construction Company, Huntington, W. Va., for the installation of a passing siding at Terry Junction, W. Va., at a probable cost of $50,000; to American Foundation, Inc., Cincinnati, Ohio, for the reconstruction of Bridge No. 1508, Sweetser, Ind., at an estimated cost of $42,400, and to A. J. Saville, Inc., Richmond, Va., for the construction of an office building, scale house, store and shop building on the railroad's coal pier at Newport News, Va., at an approximate cost of $55,000. Authorization has also been given for the laying of additional mine tracks to serve the Pemberton Coal & Coke Company, Affinity, W. Va., at a probable cost of $32,600, and for engine terminal facilities to cost about $41,000 at Walbridge, Ohio.

CHICAGO GREAT WESTERN.—Company forces have undertaken the construction

Continued on Next Left Hand Page

TIGERWELD PLUG TYPE SIGNAL BONDS

THERE is no substitute for unvarying quality in signal bond construction. And—so—the Northern Pacific—like other leading railroads—depends 100% on Tigerweld Signal Bonds for the efficient operation of its signal equipment. Experience proves that these Bonds—either in the single or duplex type—offer flexibility and low cost—and withstand severe mechanical abuse and have a low resistance that adds greatly to the safety of the track circuit. You are invited to write for further information.

STANDARD *Equipment on the Northern Pacific*

Along the right-of-way of the Northern Pacific. This view shows the application of Tigerweld Signal Bonds

1831 COMMEMORATING AMERICAN STEEL & WIRE COMPANY 100 YEARS of PROGRESS in WIRE MAKING 1931

AMERICAN STEEL & WIRE COMPANY

208 South La Salle Street, Chicago SUBSIDIARY OF UNITED STATES STEEL CORPORATION And All Principal Cities

Pacific Coast Distributors: Columbia Steel Company, Russ Building, San Francisco *Export Distributors:* United States Steel Products Company, New York

of an extension of six stalls to the roundhouse at Oelwein, Iowa. With certain other construction involving the rearrangement of portions of the shops at that point the entire project will represent an expenditure of about $35,000.

CHICAGO, ROCK ISLAND & PACIFIC—ST. LOUIS-SAN FRANCISCO.—The Rock Island has received bids for the construction of a reinforced concrete highway subway under the tracks of these companies at South Robinson avenue, Oklahoma City, Okla. This work, which is being undertaken incident to the construction of a union passenger station at Oklahoma City, will involve an expenditure of about $150,000.

DELAWARE & HUDSON.—Specifications and cost estimates for work in connection with the elimination of the Maple street crossing of the Delaware & Hudson in Afton, N. Y., have been approved by the New York Public Service Commission.

ERIE.—The Public Service Commission of New York has approved estimates of cost and specifications for the elimination of grade crossings of this company's tracks with the Suffern-Hillburn state highway, Hillburn, N. Y., and with the Lakeville-Avon highway two miles north of Lakeville station, Avon, N. Y.

LEHIGH VALLEY.—The New York Public Service Commission has approved specifications and estimates of cost totaling $163,000 for the work of eliminating the School House and Burtts crossings of this company's tracks in Ithaca, N. Y.

MINNEAPOLIS & ST. LOUIS.—The Iowa State Highway Commission has awarded a contract to the A. Olson Construction Company, Waterloo, Iowa, for the construction of a concrete and steel viaduct which will carry United States Highway 30 over this railroad's tracks east of Marshalltown, Iowa.

MISSOURI PACIFIC.—The district engineer of the War department will receive bids at the United States Engineer office at Memphis, Tenn., until June 16, for the construction of a reinforced concrete culvert to carry the intercepting drainage ditch of the Bird's Point-New Madrid floodway drainage system under the tracks of this company at Samos, Mo.

MISSOURI PACIFIC.—A contract has been awarded to the Edwin Ahlskog Company, Chicago, for the construction of a 2,250,000-bu. addition to this railroad's Kansas-Missouri grain elevator in the Northeast Industrial district, Kansas City, Mo., which is under lease to the Hall-Baker Grain Company. The addition will include 81 storage bins, each 18 ft. in diameter and 100 ft. high. The general dimensions of the addition will be 169 ft. by 195 ft.

NEW YORK CENTRAL.—Two important contracts recently awarded by this company in connection with its general program of improving and developing its freight facilities on the West Side of Manhattan Island call for the construction of a cold storage warehouse at 450 West Fourteenth street by the Aronberg-Fried Company, Inc., of New York City, and for the placing of foundations for the new St. John's Park freight terminal, on the blocks bounded by Laight, Beach, Varick and Hudson streets, by the P. T. Cox Contracting Company, Inc., also of New York. Additional contracts have been let as follows: To the Jones & Laughlin Steel Corporation, New York and Pittsburgh, Pa., for the manufacture and delivery of structural steel for Bridge No. 493, Mohawk division, Schuyler Junction, N. Y.; to the Walsh Construction Company, Syracuse, N. Y., for the elimination of a grade crossing at Gouverneur street, Canton, N. Y., and to the Bates & Rogers Construction Company, New York, for similar work at the railroad crossing of the Peekskill-Salem highway, Purdys, N. Y. The railroad company has also received approval, from the Public Service Commission of New York, of a bid submitted by the Bates & Rogers Construction Company for the elimination of its Cemetery crossing, two miles northeast of Canton, N. Y., and of detailed plans and cost estimates prepared for the elimination of a grade crossing on the Mexico-Union Square state highway at Mapleview station, Mexico, N. Y., and for the reconstruction of the highway bridge carrying River street, Nelliston, N. Y., over the New York Central tracks.

NORFOLK & WESTERN.—Authority has been issued by this company for the installation of coal spraying facilities at Pier 4, Lambert Point, Va., and for the elimination of grade crossings by the construction of overhead bridges at Seven Mile Ford, Radford division, and between Meherrin and Burkeville, Pamplin belt line.

ST. LOUIS-SAN FRANCISCO.—A contract has been let to Reed & Lowe, Birmingham, Ala., for the elevation of this railroad's tracks 5 ft. in the vicinity of the new four-track viaduct which it is planned to construct over Southwest avenue at Ivanhoe avenue, St. Louis, Mo. Tracks will be raised for a distance of about 2,600 ft. on one side of the viaduct and for 1,000 ft. on the opposite side. The track raising is preliminary to the actual construction of the bridge, for which it is expected that bids will be requested about August 1. The entire improvement will cost about $130,000, of which the City of St. Louis will pay $56,000. This railroad has also awarded contracts for six small bridges in Missouri and Oklahoma, which will include the construction of concrete piers, abutments and piling. The construction of one bridge in Missouri and one in Oklahoma will be undertaken by the Hedges & Weeks Construction Co., Springfield, Mo., and four bridges in Missouri will be constructed by the J. W. McMurray Company, Kansas City, Mo.

WESTERN PACIFIC CALIFORNIA.—This company has applied to the Interstate Commerce Commission for an extension from July 1 to January 1 of the time allowed in the certificate issued by the commission for the beginning of construction work on the proposed line from San Francisco to Niles, Cal. Negotiations are still in progress for trackage rights over the Southern Pacific line for part of the distance.

Financial

ATLANTIC COAST LINE.—*Bonds.*—The Interstate Commerce Commission has authorized this company to procure the authentication and delivery of $1,734,000 of Series A, 4½ per cent general unified mortgage 50-year bonds in reimbursement for capital expenditures.

BALTIMORE & OHIO.—*Abandonment.*—The Interstate Commerce Commission has authorized this company and the Coal & Coke to abandon a mile of its Turner branch in Kanawha County, W. Va.

BALTIMORE & OHIO.—*Time For Disposition of Western Maryland Extended.*—The Interstate Commerce Commission has issued an amended order extending to July 13 the time in which this company is required to dispose of its stock in the Western Maryland. The original order erroneously fixed the date as June 13. The B. & O. has also applied for another six months extension, to January 13, 1932.

BALTIMORE & OHIO.—*Proposes To Operate B. R. & P.*—This company has applied to the Interstate Commerce Commission for authority to operate as a part of its system the property of the Buffalo, Rochester & Pittsburgh, under an operating agreement, and the B. R. & P. has also applied for authority to operate the Buffalo & Susquehanna, so that both will be directly operated by the B. & O. The latter was authorized by the commission to acquire control of the two roads and it owns about 98 per cent of their stock.

DELAWARE, LACKAWANNA & WESTERN.—*Abandonment.*—The Interstate Commerce Commission has denied the application of this company and the Morris & Essex, lessor, for authority to abandon a portion of its Rockaway, N. J., loop line extending from Rockaway southwesterly to East Dover Junction, 2.1 miles.

GAINESVILLE & NORTHWESTERN.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon the operation of its line from New Holland Junction, Ga., to Helen, 33.56 miles.

GALVESTON WHARF.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue $424,000 of 5½ per cent, series B, refunding mortgage bonds to be exchanged and/or sold for the purpose of refunding outstanding bonds maturing on July 1, 1932.

MISSOURI PACIFIC.—*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority to acquire more complete control of the Chester & Mt. Vernon, which it now operates under lease, by acquiring its 2,000 shares of capital stock for $196,069.

NASHVILLE, CHATTANOOGA & ST. LOUIS.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon that portion of its Swan Creek branch extending from Centreville, Tenn., to Rochelle, 5.7 miles, and from Stewart to Arnold, 2.6 miles.

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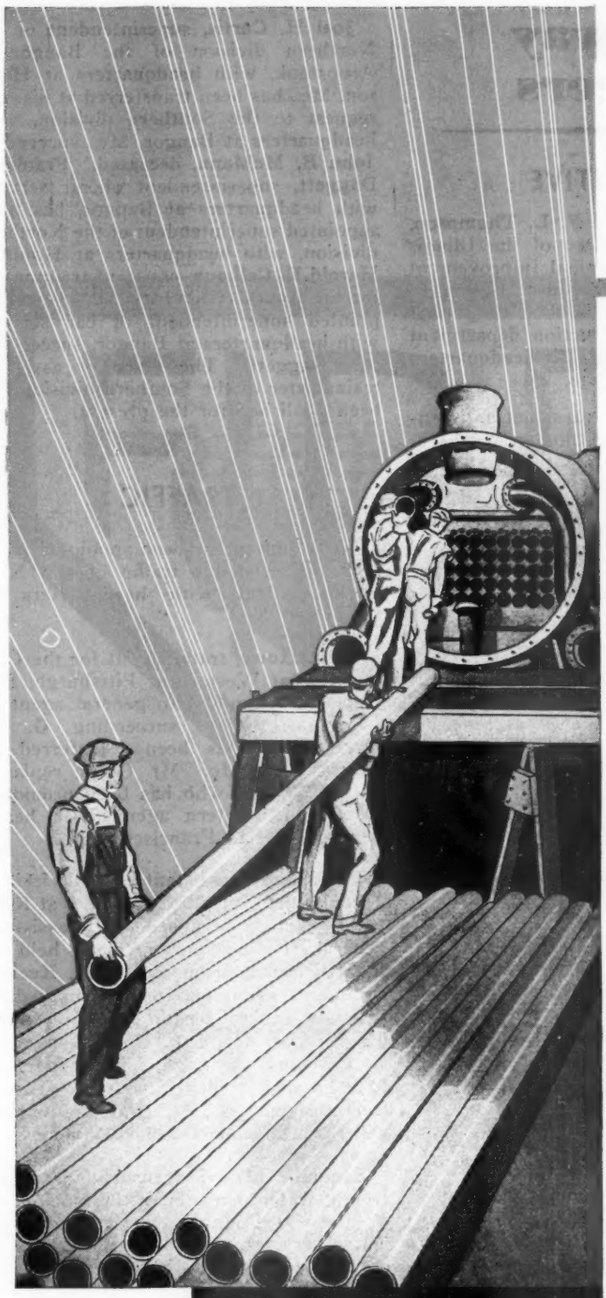

How TONCAN IRON cures tube troubles

CORROSION is one of the worst enemies of boiler tubes. To combat it, Toncan Iron fortifies the natural corrosion resistance of refined iron by alloying with copper and molybdenum.

■ By making Toncan Iron boiler tubes seamless, another cause of tube trouble is eliminated.

■ Many a leaky tube gets its start from the weakened condition in which cold working leaves ordinary tube metal. But Toncan Iron is unaffected by cold working.

■ Thus, Toncan Iron boiler tubes overcome three major causes of boiler tube replacement, thereby keeping maintenance in check.

REG. U.S. PAT. OFF.
TONCAN
COPPER
Mo-lyb-den-um
IRON

REPUBLIC STEEL CORPORATION
General Offices: Youngstown, Ohio

NORFOLK & WESTERN.—*Abandonment.*—The Interstate Commerce Commission has authorized the Big Sandy & Cumberland, a subsidiary of the Norfolk & Western, to abandon the so-called "Matney segment" of its line extending from Hurley, Va., to Grundy, 15.7 miles.

PITTSBURGH & SUSQUEHANNA.—*Receiver's Certificates.*—The Interstate Commerce Commission has authorized the receiver of this company to issue $20,000 of 6 per cent receiver's certificates to be sold at not less than par.

PORTLAND TERMINAL.—*Securities.*—This company has applied to the Interstate Commerce Commission for authority to issue $1,050,000 of first mortgage 5 per cent bonds, to be guaranteed by the Maine Central. The proceeds are to be used to pay at maturity $1,000,000 of one-year notes. Authority also is asked to issue $1,000,000 of six-months 5 per cent notes.

ST. LOUIS-SAN FRANCISCO.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue and pledge $13,228,100 of prior lien mortgage 6 per cent bonds and $16,242,000 of consolidated mortgage five-year 6 per cent bonds, in additional to a like amount of 25-year bonds from time to time in conversion of the five-year bonds. It also asked authority to issue and pledge $1,295,000 prior lien mortgage 6 per cent bonds and $2,074,000 of 4½ per cent consolidated mortgage bonds. The consolidated mortgage bonds are to be sold on terms not yet determined.

Dividends Declared

Beech Creek.—50c, quarterly, payable July 1 to holders of record June 15.

Chicago, Rock Island & Pacific.—Common, 1 Per Cent; 7 Per Cent Preferred, 3½ per cent, semi-annually; 6 Per Cent Preferred, 3 per cent, semi-annually; all payable June 30 to holders of record June 12.

Colorado & Southern.—First Preferred, 2 per cent, semi-annually, payable June 30 to holders of record June 16.

Detroit Hillsdale & Southwestern.—2 per cent, payable July 6 to holders of record June 20.

Lehigh Valley.—Common, 62½c, quarterly; Preferred, $1.25, quarterly; both payable July 1 to holders of record June 13.

Morris & Essex.—$1.75, payable July 1 to holders of record June 6.

New York & Harlem.—Common and Preferred, $2.50, payable July 1 to holders of record June 15.

New York, Lackawanna & Western.—1¼ per cent, quarterly, payable July 1 to holders of record June 15.

Old Colony.—1¾ per cent, quarterly, payable July 1 to holders of record June 13.

St. Louis Rocky Mt. & Pacific.—Common, 25c, quarterly; Preferred, $1.25, quarterly, both payable June 30 to holders of record June 15.

Virginian.—Preferred, $3.00, semi-annually, payable August 1 to holders of record July 18.

Average Prices of Stocks and of Bonds

	June 9	Last week	Last year
Average price of 20 representative railway stocks.	64.01	56.49	122.66
Average price of 20 representative railway bonds..	91.19	89.05	93.83

THE FAST FREIGHT SERVICE for fruits and vegetables over the Pennsylvania from the "Delmarva" peninsula northward has been rearranged for the present season to provide second morning delivery for New England points as far east as Boston. First morning delivery will be made at Philadelphia and New York and as far as Williamsport, Pa.; and first afternoon delivery at Elmira, N. Y.

Railway Officers

EXECUTIVE

The jurisdiction of **F. L. Thompson,** vice-president in charge of the Illinois Central Chicago Terminal Improvement and the valuation department of the Illinois Central, was extended on June 1 to include the construction department of the entire railroad. His headquarters will remain at Chicago.

T. J. Maloney, vice-president and general manager of the Illinois Northern, has been elected president of that company, with headquarters as before in Chicago, succeeding **H. B. Utley,** deceased. **J. E. Ryan,** auditor of the road, has been elected vice-president, succeeding Mr. Maloney, with headquarters at Chicago.

FINANCIAL, LEGAL AND ACCOUNTING

W. D. Sawyer, cashier in the office of the secretary and treasurer of the Gulf, Colorado & Santa Fe at Galveston, Tex., has been promoted to assistant secretary and assistant treasurer, with headquarters at the same point.

OPERATING

Dewey Weldon has been appointed assistant trainmaster on the Panhandle division of the Pennsylvania at Zanesville, Ohio, succeeding **C. W. Blount,** who retired from active service on June 1.

P. H. Smith, superintendent of the Minneapolis, Northfield & Southern and the Minnesota Western, has been appointed general superintendent of those companies, with headquarters as before at Minneapolis, Minn.

A. J. Chester, general superintendent of the Texas & Pacific, with headquarters at Dallas, Tex., has been appointed superintendent of the Fort Worth division, with headquarters at Fort Worth, Tex., succeeding **J. W. Knightlinger,** who has been granted a leave of absence. The position of general superintendent of the Texas & Pacific has been abolished.

Basiliso Ortega, superintendent of the San Luis Potosi division of the National of Mexico, with headquarters at San Luis Potosi, S. L. P., has been transferred to the Mexico-Queretaro division, and the headquarters of the latter division, effective June 1, have been removed from Buenavista, D. F., to Queretaro, Qro. **Alfonso E. Plancarte,** superintendent of the Mexico City terminals, has been transferred to the Vera Cruz-Istmo, the Tehauntepec and the Pan-American divisions, with headquarters at Tierra Blanca, Ver. C., succeeding **J. I. Garcia,** who has been appointed assistant superintendent of the Mexico City terminals.

Joel H. Curtis, superintendent of the Northern division of the Bangor & Aroostook, with headquarters at Houlton, Me., has been transferred at his own request to the Southern division, with headquarters at Bangor, Me., succeeding **John B. McMann,** deceased. **Frank H. Daggett,** superintendent of car service, with headquarters at Bangor, has been appointed superintendent of the Northern division, with headquarters at Houlton. **Harold E. Calhoun,** assistant trainmaster on the Southern division, has been appointed superintendent of car service, with headquarters at Bangor, succeeding Mr. Daggett. The office of assistant trainmaster of the Southern division has been abolished for the present.

TRAFFIC

W. S. Jensen has been appointed manager of perishable traffic of the New York Central, with headquarters at Rochester, N. Y.

C. A. Howe, traffic agent for the Chicago Great Western at Pittsburgh, Pa., has been promoted to general agent at Cincinnati, Ohio, succeeding **G. N. Gregg,** who has been transferred to Kansas City, Mo. Mr. Gregg replaces **A. W. Nelson,** who has been promoted to general western agent, with headquarters at San Francisco, Cal.

F. S. Baird, assistant general freight agent of the Norfolk & Western at Roanoke has been advanced to the assistant general freight agency formerly held by **F. H. Pitman,** promoted. **C. F. Keeley,** commerce agent, has been promoted to assistant general freight agent, succeeding Mr. Baird and **A. C. Dunlop,** division freight agent, has been appointed to a newly created assistant general freight agency. All the above officers will have headquarters in Roanoke, Va.

Samuel M. Stevenson, assistant freight traffic manager of the Norfolk & Western at Roanoke, Va., retired from active service on June 1, after 50 years of railroad service. Mr. Stevenson began his railroad career as stenographer in the freight traffic department of the Virginia, Tennessee & Georgia Air Line, a freight despatch line extending from New York and New England and other Atlantic ports via Norfolk and the Norfolk & Western to Bristol and as far south as Little Rock, Ark., and New Orleans, La. He was, successively, chief clerk, assistant general eastern agent and general eastern agent for this line, and later also represented the N. & W. Despatch and the Cumberland Gap Despatch, fast freight lines, in the same capacity. During the World War these fast freight lines were discontinued and on May 16, 1918, Mr. Stevenson became assistant general freight agent of the Norfolk & Western. He was appointed to serve on the freight traffic committee of the Atlantic Ports, under the United States Railroad Administration, in July, 1918, and in May, 1919, he was appointed traffic control manager by the Fed-

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eral government. When the railroads were returned to private management he became general eastern freight agent of the N. & W. at New York, serving in that position until February, 1927, when he was promoted to assistant freight traffic manager, the position he held at the time of his retirement.

Louis W. Landman, general passenger traffic manager of the New York Central, Lines West, the Cleveland, Cincinnati, Chicago & St. Louis, the Michigan Central and the Pittsburgh & Lake Erie, with headquarters at Chicago, has had his jurisdiction extended to cover also the New York Central, Lines, Buffalo and East, with headquarters at New York. Mr. Landman will take over the duties heretofore performed by **L. F. Vosburgh,** deceased. **Albert E. Brainard,** assistant passenger traffic manager of the Lines, Buffalo and East, with headquarters at New York, has been advanced to passenger traffic manager, Lines East. **J. R. Grant,** assistant to the vice-president of traffic, New York Central Lines, with headquarters in New York, has been promoted to assistant passenger traffic manager, Lines, Buffalo and East. **Irving M. Taylor,** general passenger agent (fares and divisions), with headquarters in New York, has been promoted to assistant passenger traffic manager of the N.Y.C.RR. **James W. Switzer,** general passenger agent of the Michigan Central at Chicago has been appointed assistant passenger traffic manager of the New York Central R.R., Lines West, the Cleveland, Cincinnati, Chicago & St. Louis, the Michigan Central and the Pittsburgh & Lake Erie.

F. H. Pitman, who has been appointed general freight agent of the Norfolk & Western, with headquarters at Roanoke, Va., was born in Roanoke on April 10, 1888. He entered the service of the N. & W. in August, 1902, as a mimeographer in the freight traffic department. He served in various capacities in the filing, mailing and recording departments

F. H. Pitman

and later handled percentage, tariff, rate and quotation matters. In August, 1916, he became chief rate clerk and in March, 1920, he was further advanced to the position of chief clerk to the freight traffic manager. Mr. Pitman became division freight agent in June, 1922, serving in that position until February, 1927, when he became assistant general freight agent.

ENGINEERING AND SIGNALING

F. A. Jones, division engineer of the Kansas City (Mo.) Terminal division of the Missouri Pacific, has been transferred to the Little Rock division at McGehee, Ark., succeeding **A. B. Chaney,** who has been appointed division engineer of the Union Railway and the Memphis division at Wynne, Ark., succeeding **K. G. Williams** and **C. J. Jaeschke,** who were assigned to other duties on May 16. The jurisdiction of **V. C. Halpin,** division engineer of the Central Kansas division at Osawatomie, Kan., has been extended to include the Kansas City Terminal division.

F. M. Siefer, division engineer of the Stockton division of the Southern Pacific at Stockton, Cal., has been appointed assistant division engineer of the Western division at Oakland Pier, Cal., following the consolidation of the Stockton division with the Western division. Mr. Siefer succeeds **W. H. Phelps,** who has been transferred to the Coast division at San Francisco, Cal., where he replaces **H. A. Lathrop,** who has been transferred to the Salt Lake division at Sparks, Nev. **W. Riseden,** assistant division engineer of the Stockton division at Stockton, has been transferred to the San Joaquin division at Bakersfield, Cal.

MECHANICAL

W. S. James, electrical supervisor on the Erie, with headquarters at Meadville, Pa., has been appointed electrical engineer, with headquarters at New York, succeeding **George Hamilton,** transferred.

D. S. Littlehales, master mechanic of the Seattle division of the Northern Pacific, with headquarters at Seattle, Wash., has retired from active service, under the pension rules of the company.

T. W. McCarthy, superintendent of motive power of the First district of the Chicago, Rock Island & Pacific, with headquarters at Des Moines, Iowa, has retired from active duty after 48 years of railway service. Mr McCarthy was born at Dunkirk, N. Y., on April 27, 1862, and served his mechanical apprenticeship at the Brooks Locomotive Works and the Dunkirk Engineering Works. He entered railroad service in 1883 on the Union Pacific. Later he served with the Wheeling & Lake Erie and the Wabash, being appointed general foreman on the Rock Island at Shawnee, Okla., in 1906. On that road Mr. McCarthy served successively as master mechanic on the Arkansas, Panhandle—Indian Territory, Kansas and Cedar Rapids-Minnesota divisions. He had been superintendent of motive power of the First district at Des Moines since 1926.

OBITUARY

C. V. Coulter, district storekeeper of the Cleveland, Cincinnati, Chicago & St. Louis, with headquarters at Beech Grove, Ind., died on May 12.

John B. McMann, superintendent of the Southern division of the Bangor & Aroostook, with headquarters at Bangor, Me., died on May 15.

Albert B. Quencer, assistant general attorney for the New York Central at New York, died at his home in that city on June 8, following an operation. Mr. Quencer was 61 years of age.

Louis Beindorff, general agent of the passenger department of the Union Pacific at Omaha, Neb., shot and killed himself in that city on June 4, following a prolonged period of ill health.

William P. Cline, who retired as superintendent of telegraph of the Atlantic Coast Line on June 1, died at his home in Wilmington, N. C., on June 4. Mr. Cline had served in the capacity of joint superintendent of telegraph for the Atlantic Coast Line and the Western Union for nearly 28 years prior to his retirement on June 1. He was born at Mount Airy, Md., on May 19, 1861, and entered railroad service in 1876 as telegraph messenger on the Cumberland Valley (now part of the Pennsylvania), at Martinsburg, W. Va. The following year he became telegraph operator on the Baltimore & Ohio, serving in that capacity until 1888. From the latter date until 1903 he served successively as assistant and chief operator for the Western Union Telegraph Company at Richmond, Va. He was appointed to the position of superintendent of telegraph for the Atlantic Coast Line at Wilmington, N. C., in 1903, serving in that capacity continuously until his retirement.

Fred M. Bisbee, former chief engineer of the Western lines of the Atchison, Topeka & Santa Fe, with headquarters at Amarillo, Tex., who retired from active duty on November 1, 1922, died at his home at Hollywood, Cal., on May 4. Mr. Bisbee was born at Brunswick, Me., on September 27, 1853, and graduated from the University of Maine in 1876. Two years later he entered railroad service as a rodman on the Santa Fe. Thereafter he served successively as superintendent of construction of the Mexican Central (now part of the National of Mexico), superintendent of track laying of the A., T. & S. F., superintendent of track, bridges and buildings of the Gulf, Colorado & Santa Fe, superintendent of track, bridges and buildings of the St. Louis & San Francisco, general manager and chief engineer of the Tennessee Central, general manager of the Los Angeles Land & Water Co., and engineer for B. Lantry & Sons, railroad contractors at Fort Madison, Iowa. In 1904 he was appointed engineer of the Western lines of the Santa Fe at La Junta, Colo., where he remained until 1913 when he was promoted to chief engineer of the Western lines at Amarillo.